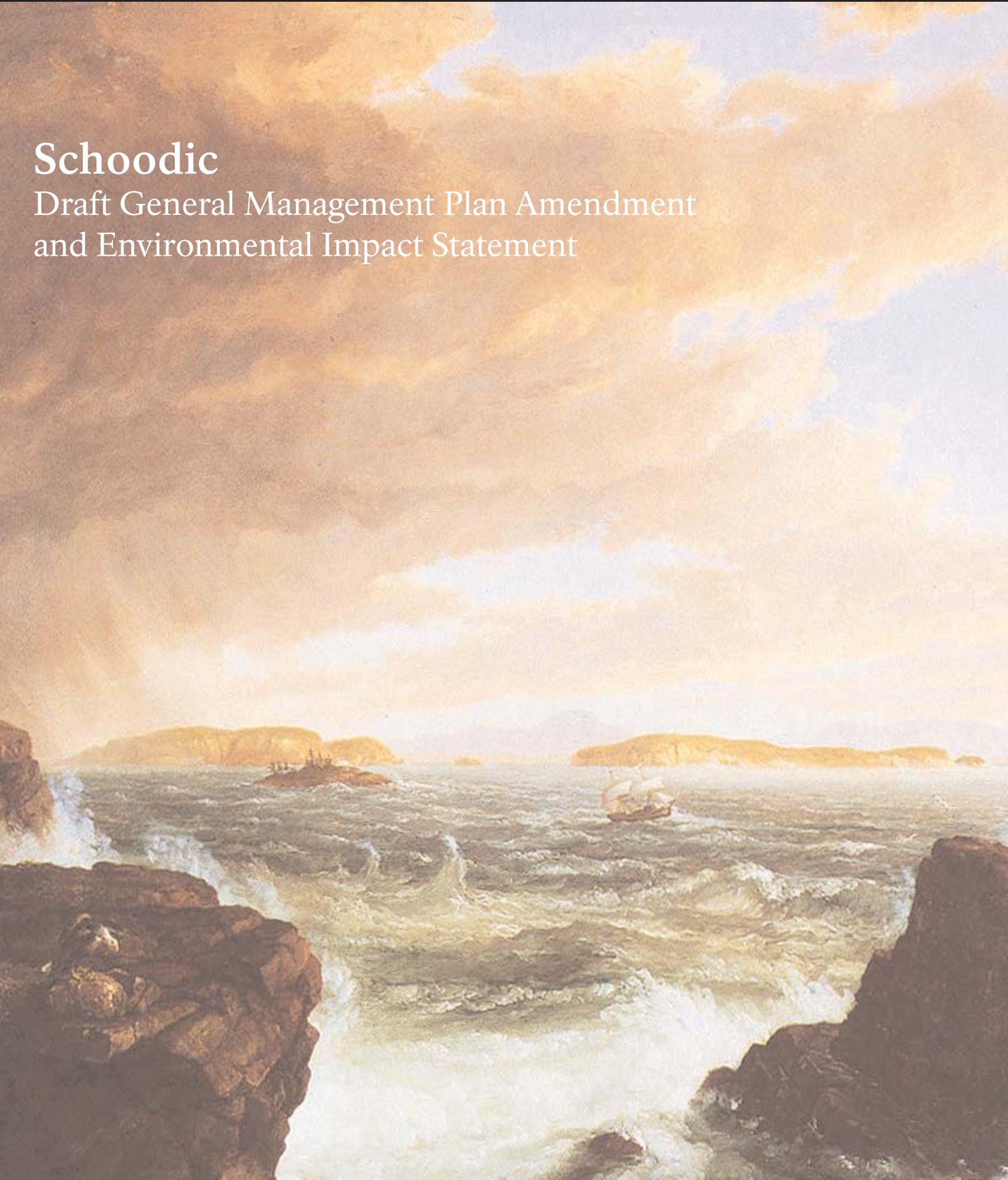




# Schoodic

## Draft General Management Plan Amendment and Environmental Impact Statement





# Schoodic

## Draft General Management Plan Amendment and Environmental Impact Statement



## ABSTRACT

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This *Draft General Management Plan Amendment and Environmental Impact Statement (DGMPA/EIS)* documents the proposed management options for the Schoodic District of Acadia National Park over the next 15–20 years. As Acadia's *General Management Plan (National Park Service 1992a)* does not address the transfer of the navy base at Schoodic Point to the NPS, there is a need to provide guidance for future park use of navy facilities. This draft plan provides the foundation for decision making regarding, among other things, resource management, cooperative efforts and partnerships, visitor use, and operational efficiencies so that future opportunities and challenges can be effectively addressed. In addition, the environmental effects of each of the three alternatives are analyzed.

The three management alternatives include a "no action" alternative (continued current management) and two "action" alternatives for managing the resources and visitor uses of the Schoodic District. All include the revision of "management zoning" designed to conserve and protect natural and cultural resources within the Schoodic District, while allowing for visitor experience of such resources. The preferred alternative (C) would establish the Schoodic Education and Research Center (SERC) at the former navy base. The center would facilitate science and learning through partnerships among various organizations. Compared with the other two alternatives, this proposal anticipates the highest number of visitors and staff at the Schoodic District, while increasing opportunities for education and research.

## PUBLIC COMMENT

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This draft document has been designed to evaluate the impacts of the three alternatives considered and to provide the public an opportunity to comment. The public comment period for the *DGMPA/EIS* will end 60 days after the notice of availability is published in the *Federal Register*. Please send comments to the office and email addresses below. Please note that names and addresses of people who comment become part of the public record.

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For additional information, visit the project website:  
<http://www.nps.gov/acad/schoodic/home.htm>



Aerial photograph of Schoodic (source: U.S. Navy)

# EXECUTIVE SUMMARY

## INTRODUCTION

The Schoodic District of Acadia National Park was added in 1929. Between 1935 and 2002, the Schoodic peninsula was home to a U.S. Navy base located on 100 acres at Schoodic Point on the far southern tip of the peninsula. In 2002 the base property was transferred from the Navy to National Park Service (NPS) jurisdiction. With the Navy's departure, NPS must now decide how to convert this property from military to appropriate park use.

The purpose of a general management plan is to provide NPS with a basic framework for decision-making related to a variety of issues over a period of 15–20 years. A general management plan describes broad goals and objectives for the park. In addition, management prescriptions for the achievement of these goals and objectives are provided within the document.

Acadia's *General Management Plan* states that NPS will manage the Schoodic District to retain opportunities for low-density recreation, current (1992) use levels and parking lot capacities, and the existing naturalness and solitude. In addition, the plan states that NPS will not actively promote the Schoodic District or add facilities to the area. All of the Schoodic District is zoned as a "Natural Area," which directs NPS to manage the area to conserve and protect natural resources and ecological processes, and provide for their use and enjoyment by the public.

## PARK SETTING

Acadia National Park is located on the coast of Maine and includes approximately 35,500 acres. Most of the park is located on Mount Desert Island. The park includes large portions of Isle au Haut (15 miles southwest of Mount Desert Island) and the Schoodic Peninsula (5 miles east of Mount Desert Island). The *Draft Schoodic General Management Plan Amendment and Environmental Impact Statement* addresses the 2,366-acre Schoodic District of Acadia National Park, which is the only portion of the park located on the mainland.

The study area lies within the Eastern Coastal Region of the State of Maine, which extends from Mount Desert Island to Canada in a 20-mile-wide band along the Gulf of Maine (McMahon 1990). The climate of the Eastern Coastal Region is strongly moderated by the Gulf of Maine. Winter temperatures are warmer relative to those a few miles inland and summer temperatures are relatively cooler. The park lies in a broad transition zone between southern deciduous and northern coniferous forests. The combination of the climate and varied topography has resulted in rich plant and animal species diversity at Schoodic.

Human occupation of the Maine area dates from 11,500 years ago. Coastal groups living 3,000–6,000 years ago were separate from interior groups and are represented archeologically primarily by shell middens. Early historic use of the area was based on fishing and lumbering dating back to the late 1700s. Much of the study area (the Schoodic Peninsula) remained uninhabited by non-native people. In 1929, the Schoodic parklands were donated to NPS. By 1935, a Navy radio communications station on Mount Desert Island had been moved to the tip of the Schoodic Peninsula and the associated 6-mile Schoodic Loop Road on Schoodic had been completed. Beginning at the northwestern boundary of the park at Frazer Creek, the road provides visitors with a classic Maine coast vista of rocky shoreline, islands and a lighthouse. The proposed Schoodic Peninsula Historic District (not including the former navy base or coastal islands) is eligible for listing in the National Register of Historic Places as a significant cultural landscape.

## PURPOSE AND NEED FOR PLAN

The purpose of this *Draft Schoodic General Management Plan Amendment and Environmental Impact Statement* is to define direction for the management of the entire 2,366-acre Schoodic District of the park, including the former navy base property. The plan provides the foundation for decision making regarding resource management, cooperative efforts and partnerships, visitor use, and operational efficiencies so that

future opportunities and challenges can be effectively addressed. It also describes the existing and desired conditions for park resources to ensure the park's adherence to its mission statement. The intent of this plan is to uphold the goals of the 1992 *General Management Plan* while carrying out the new legislative mandates for establishing a research and education center at Schoodic.

As Acadia's current *General Management Plan* does not address the closure and transfer to NPS of the navy base at Schoodic Point, there is a need to provide guidance for future park use of navy facilities. The recent addition of the navy base property offers many opportunities for resource protection and visitor use. Its historic buildings and other facilities have great potential to support the park's mission; however, they also present management dilemmas for the entire Schoodic District. While legislative direction calls for a research and education center at Schoodic, details about the scale and operation of the center are left to NPS to determine. Those details appear in each of three alternatives analyzed in this *Draft General Management Plan Amendment and Environmental Impact Statement*.

## **INITIAL ACTIONS**

The NPS is undertaking a number of initial actions at the former navy base to prepare it for park use as well as to provide continuity of certain services. Immediate needs include modifications to facilities for health and safety, providing for limited public use, maintaining buildings and utilities, conducting educational programs, housing researchers, and managing resources.

## **CRITICAL ISSUES**

Planning efforts for the Schoodic District included consultation with resource experts, visitors, park neighbors, local and state governments, and members of the public in order to identify their concerns and hopes for the area. As a result, the following issues were identified as critical for park management.

- resource management,
- visitor use/interpretation,
- cooperative efforts/partnerships, and
- operational efficiencies.

All are considered of importance to the park's mission and goals and were instrumental in the formulation of management prescriptions (statements of desired future conditions) and alternatives.

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## **ALTERNATIVES**

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Three long-range management alternatives for managing the resources and visitor uses of the Schoodic District are analyzed in detail in this EIS, including a "no action" alternative (continued current management) and two "action" alternatives. All include the revision of "management zoning" designed to conserve and protect natural and cultural resources within the Schoodic District, while allowing for visitor experience of such resources. Some management prescriptions (statements of desired future conditions) for the four critical issues noted above are consistent for all three alternatives.

In addition, Acadia National Park has been selected to house a research learning center as part of a nationwide NPS initiative called the "Natural Resource Challenge." Called the Schoodic Education and Research Center (SERC), this new center will be the primary use for the newly acquired facilities at Schoodic. **SERC is common to all the alternatives described in this plan, but its management, scale, and cooperation with partners will vary.**

## **ALTERNATIVES ADDRESSED IN THE ENVIRONMENTAL IMPACT STATEMENT**

### **Alternative A No Action**

The No Action Alternative reflects existing park conditions. It includes ongoing activities while serving as a baseline for comparison of impacts with the action alternatives. Under this approach, the Schoodic District, including the former navy base, would continue to be managed by NPS as in the past, with some minor changes related to the Navy's departure. This would likely result in the continuation of visitors' enjoyment of a quiet, uncrowded experience. Five additional staff members are proposed under this approach, allowing for only



occasional visitor programs on the former navy base. Park information and interpretation would remain at current levels.

Overall visitor day use for the entire Schoodic District would increase by about 1% per year, in addition to some 1,800 new annual program participants at the former navy base.

Accommodations for 20 program participants would be available in dormitories. Traffic, already significantly reduced as a result of the Navy's departure, is expected to remain well below 2001 conditions as a result of this alternative. Management of navy base facilities would be minimal and focused on the protection and maintenance of existing facilities. The historic Rockefeller Building and powerhouse would be preserved according to *The Secretary of the Interior's Standards for the Treatment of Historic Properties* (NPS 1995).

### **Alternative B National Park Service Management**

This alternative would combine the continuation of the park's current operation with some expansion to include the use of navy base facilities for park use, primarily through additional visitor programming. Overall management of the Schoodic District facilities, programming, maintenance, etc., including the former navy base, would be the responsibility of NPS. Priority would be focused on existing research and education and the preservation of historic structures. Unnecessary navy base structures would be removed. Over time, almost half of the base could be restored to natural conditions. Thirty additional staff members are proposed under this approach, allowing for a more intense use of the navy base for programming, research, and education. Educational and interpretive visitor information would be increased under this alternative.

A 1% per year increase in visitor day use for the entire Schoodic Unit is expected, in addition to some 13,500 new annual program participants at the former base. Overnight accommodations for 90 program participants would be available. As a result of the Navy's departure, traffic volumes under this alternative will still have been significantly reduced but they are slightly higher than those under the No Action Alternative. The historic Rockefeller Building and powerhouse

would be preserved and rehabilitated according to *The Secretary of the Interior's Standards for the Treatment of Historic Properties* (NPS 1995). The building would include offices and other space related to increased programming and visitor use. Removal of some unused buildings on the base could result in up to 40 acres of disturbed lands being restored to native plant communities.

### **Alternative C Collaborative Management (Preferred)**

This alternative would establish the Schoodic Education and Research Center (SERC) with multiple partners and is believed to be the one that best meets park goals set forth in the *Draft General Management Plan Amendment*. The approach relies on collaborative partnerships among the park and other entities designed to promote broad-based research and education. A new nonprofit organization would function as coordinator of programming/activities and would assist in site management (food, lodging, meeting coordination). Navy base facilities would be used for meetings, retreats, and special events consistent with the mission of SERC. The park would continue to sponsor research and work with other partners in developing laboratory, library, computing, and other facilities as a part of SERC. Sixty additional staff members are proposed under this approach, allowing for the most intense use of the navy base for programming, research, and education of all alternatives. Educational and interpretive visitor information would be increased under this alternative.

An annual increase of about 1% per year in visitor day use for the entire Schoodic Unit is expected. In addition, approximately 31,500 new annual program participants are expected at the former navy base. Approximately 190 program participants could be housed overnight in dorms and apartments. Traffic volumes would be lower than those experienced during navy base operations, but higher than those expected under the other two alternatives. The historic Rockefeller Building and powerhouse, along with the commissary and medical clinic, would be preserved and the interiors rehabilitated for expanded program use. Where National Register of Historic Places eligible structures are involved, rehabilitation would adhere to *The Secretary of the Interior's Standards for the Treatment of Historic Properties* (NPS 1995). Non-historic and ineligible structures would be evaluated for

use/removal. Removal of unused buildings on the base could result in up to 16 acres of disturbed lands being restored to native plant communities.

### **ALTERNATIVES ELIMINATED FROM FURTHER STUDY**

The following alternatives were considered but not analyzed in detail as they were considered impractical or undesirable and did not meet NPS goals identified for the study area:

- Conversion of the navy base property into an independent Navy Morale, Welfare, and Recreation facility for active-duty and retired military personnel.
- Restoration of the navy base property back to its 1935 appearance when the Navy first opened the radio station at Schoodic.
- Restoration of the navy base to pre-1935 conditions.

The potential consequences of the actions of each alternative were evaluated as to the effects they may have on natural and cultural resources, visitor experience, and the socioeconomic environment of the Schoodic District. Effects are categorized as beneficial or adverse and according to their intensity (negligible to major). In addition, cumulative impacts were evaluated for each topic. Cumulative impacts are defined as additive and indicate the extent of damage (or benefit) that is already ongoing at a site, as well as information about past, present, and future trends.

## **ENVIRONMENTAL CONSEQUENCES**

The following discussion summarizes impacts of the three alternatives. As a significant number of proposed actions/impacts are common to all alternatives, these are discussed as such immediately below, followed by impact discussions of specific alternatives. All impacts are summarized in detail in Table 2. For a complete discussion, please refer to Part Four.

### **IMPACTS COMMON TO ALL ALTERNATIVES**

#### **Natural Resources**

The implementation of public transportation options (buses, shuttles) would result in minor benefits to local air quality within the Schoodic District. Limiting parking spaces in the park could potentially reduce emissions, but this potential benefit could be offset by visitors unaware of the space reduction inadvertently increasing emissions as their cars idle while waiting for parking. The proposed use of base structures containing less than 1% asbestos would result in a negligible risk to human health under No Action; similar, but slightly higher, risks are expected under Alternatives B and C.

Revegetation of social trails on Little Moose Island would result in minor, localized benefits to soils in the area. Construction of a 0.75-mi. trail on Little Moose Island would result in localized, negligible to minor adverse impacts to soils. Implementation of visitor use controls in critical habits may reduce erosion, a positive impact to soils. Moderate to major impacts to soils would occur from the general increase in use of the Schoodic District (unrelated to base use) over the next 10–15 years. Significant reduction of fuel storage, vehicle maintenance, and hazardous material handling would result in minor or moderate, localized benefits to soils at the base; negligible to minor regional benefits to soils would be realized.

Inventory/monitoring of vegetation resources, determination of acceptable visitation levels, and implementation of appropriate zoning could result in major localized benefits for vegetation compared to existing conditions on Little Moose Island; minor to moderate benefits could be realized in other less disturbed vegetative communities on the peninsula. Revegetation of

social trails on Little Moose Island and the construction of a 0.75-mile trail could result in major local benefits for rare plants and coastal headland vegetation. Monitoring/control of aggressive non-native plants will likely result in small benefits for freshwater wetlands. The acquisition of a conservation easement to the north of the Schoodic District could provide minor to major benefits to forest vegetation on the peninsula. Minor to moderate localized benefits to vegetation are expected by the removal of unused structures (e.g., fencing) in the study area. Ongoing disturbance of soils and vegetation as a result of facility construction continues to be a minor impact to the peninsula. The general increase in visitation over the next 10–15 years would result in possible major impacts to vegetation along some trails. However, reduction in use related to base closure could create a moderate benefit to vegetation in such areas.

Inventory/monitoring of coastal resources, determination of acceptable visitation levels, and implementation of appropriate zoning could result in minor to moderate benefits to coastal resources in intertidal areas of the peninsula. Similar efforts for the evaluation of coastal wildlife (including the common eider and other nesting seabirds) could result in moderate or major localized benefits. Revegetation of social trails on Little Moose Island and construction of a 0.75-mile trail could have moderate, localized benefits for coastal vegetation.

Inventory/monitoring of wildlife resources, determination of acceptable visitation levels, and implementation of appropriate zoning could result in major localized benefits for wildlife, including the bald eagle. Minor to major benefits to wildlife are possible through the acquisition of a conservation easement to the north of the Schoodic District. Negligible to minor benefits for wildlife are expected as a result of implementation of public transport options (buses) and by the base closure.

### **Cultural Resources**

The inventory/monitoring of cultural resources in the study area, as well as the determination of acceptable visitor levels, would result in minor to major benefits to cultural resources.

Revegetation of social trails on Little Moose Island to their native state could result in minor to major, site-specific benefits to cultural resources. At the same time, ground-disturbing revegetation activities associated with trail construction on the island could result in negligible to minor impacts, particularly to archeological resources. Preparation of the National Register of Historic Places nomination form for the proposed Schoodic Peninsula Historic District would result in minor to moderate regional benefits. The use of *The Secretary of the Interior's Standards for the Treatment of Historic Properties* (NPS 1995) for guidance when evaluating new public transportation options will result in a benefit of unknown degree to the cultural landscape of the peninsula. Rezoning of certain lands on the peninsula from "Natural Environment Subzone" to "Preservation Subzone" would result in minor to moderate, localized to regional benefits for the cultural landscape. Negligible to minor, site-specific benefits are expected for the Schoodic Point restroom as a result of maintenance activities conducted according to *The Secretary of the Interior's Standards for the Treatment of Historic Properties* (NPS 1995). Minor, site-specific benefits to the Rockefeller Building are expected as a result of proposed zoning (Preservation/Adaptive Use). In addition, adherence to these standards in planning maintenance/preservation activities would result in minor to moderate benefits to the National Register of Historic Places-eligible structure. The NPS acquisition of navy archives and collections is considered a minor, regional benefit to cultural resources.

### **Visitor Experience**

The determination of acceptable levels of visitation and implementation of management zoning could result in minor to moderate impacts to visitors; however, improved visitor information regarding sensitive park resources may offset this impact. Revegetation of social trails and construction of a maintained trail on Little Moose Island would result in an overall benefit to visitors, while creating minor adverse impacts for those who frequented social trails in the past. Negligible to minor benefits to visitor experience would be realized by the connection of other trails on Schoodic with existing base trails.

## **ALTERNATIVE A: NO ACTION**

### **Natural Resources**

Reductions in vehicular use at Schoodic related to base closure, coupled with the reduced use of boilers on base, would result in negligible, regional benefits to air quality, while providing major localized benefits.

Reduction in use/demand for drinking water related to base closure is expected to have negligible to minor benefits to ground water supplies. Similar reductions in wastewater discharge are expected to have an unknown benefit (possibly moderate to major) to water quality in Arey Cove.

Negligible to minor benefits are possible for the common eider and other seabirds due to reduced human use of the area resulting from base closure.

The general increase in visitation over the life of the plan will likely result in negligible to minor impacts to wildlife around trails though these could be offset by unknown benefits of the significant decrease in human activity around the base.

### **Cultural Resources**

The combined effects of base closure, the addition of a very small number of vehicle trips by program participants, and the limited park traffic unrelated to new programs are considered minor benefits to the cultural landscape, particularly to the Schoodic Loop Road, in that they would help in delaying major road maintenance activities.

### **Visitor Experience**

Despite the slow increase in visitors, minor to moderate impacts to Schoodic Point and trails around Schoodic Head will likely occur at midday as a result of crowding. Minor impacts may occur at Frazer Point. The notable decrease in traffic as a result of base closure will provide negligible or minor benefits to visitors. The less military and more natural appearance of the former navy base and its much smaller human presence will contribute to a quieter, more peaceful visitor experience, a minor benefit when compared to 2001 conditions.

## **Socioeconomic Environment**

The expected 1% annual visitor increase to the Schoodic District, coupled with the small number of proposed program participants (1800 per year) and staff (5), would result in negligible to minor benefits to the socioeconomic environment of the area relative to conditions under base closure. Other economic benefits of unknown magnitude will likely occur from employee/visitor spending in nearby communities and rental housing by staff. However, these are offset by significant cumulative adverse impacts to spending, jobs, personal income, community infrastructure, housing, schools, and the social fabric of the region resulting from base closure.

## **ALTERNATIVE B: NPS MANAGEMENT**

### **Natural Resources**

Reductions in vehicular use at Schoodic, coupled with the reduced use of boilers on the base, would result in negligible, regional benefits to air quality while providing major localized benefits (effects similar to those under the No Action Alternative). Proposed use of base structures containing less than 1% asbestos would create slightly higher risk than would the No Action proposal (negligible risk) as more buildings would be occupied under this approach.

When compared to the No Action Alternative, the slightly increased demand under this alternative for drinking water and wastewater discharge would result in negligible to minor impacts to groundwater resources and moderate adverse impacts to Arey Cove water quality.

The impact of slightly increased visitor program use on existing trails would create negligible to minor soil impacts when compared to No Action. However, ongoing, localized impacts to soils could increase to major. Impacts to soils of overall trail use in the study area are negligible. Removal of base buildings and restoration of 40 acres of disturbed lands would result in a major, localized benefit to both soils and vegetation. As is also the case under Alternative C, implementation of a comprehensive hiking plan for the peninsula could create a minor to moderate reduction in soil erosion when compared to No Action.

Trail use by program participants could result in minor to moderate localized impacts to soils and vegetation when compared to No Action.

The addition of directed programming to sensitive, infrequently used intertidal areas could result in minor to locally major impacts to coastal resources; monitoring and use restrictions may mitigate the impacts to negligible or minor. Unrestricted use of intertidal areas by program participants may have additive and adverse impacts to common eiders and other seabirds. Impacts could be mitigated to negligible or minor by allowing only guided tours and limiting numbers of participants in these areas.

A minor, localized benefit to wildlife is possible from the removal of some base structures and the restoration of 40 acres of vegetation to a more natural state. The general increase in visitation over the life of the plan, including the addition of 150 program participants per day, may result in negligible to minor impacts to wildlife. Increased overnight programming at the base could have additional minor or moderate impacts to some nocturnal mammals when compared to No Action. Directed or unregulated program use of the islands could result in minor or moderate impacts to wildlife; however, guided use or restrictions could reduce impacts to minor. Implementation of daily ferry service to the peninsula could have minor to moderate impacts to feeding eagles, though no critical habitat would be affected and no impacts at the park level to the eagle population would result.

### **Cultural Resources**

Expected increases in traffic are still lower than when the base was in operation and impacts would remain minor to the cultural landscape of the peninsula, particularly the Schoodic Loop Road. Negligible to minor, site-specific impacts to buried cultural resources are possible as a result of building removal on base; impacts may be mitigated to negligible by the involvement of a professional cultural resource specialist in advance of such activities. Increased educational/interpretive visitor information related to historic preservation would have negligible to moderate benefits. Restoration to natural conditions of 40 acres of base land would result in a negligible or minor benefit to the cultural landscape of the potentially eligible Schoodic Peninsula Historic District. Landscaping sympathetic to the original 1934 design around the

National Register of Historic Places–eligible Rockefeller Building is a minor, site-specific benefit to the resource.

### **Visitor Experience**

The increased visitor use of the peninsula under this approach could result in major adverse impacts for visitors to Schoodic Point during peak-use times. Minor impacts could also occur at Frazer Point. Overnight visitor use of the base would create only negligible impacts to views of the nighttime sky. A general reduction of traffic from the baseline year of 2001 is offset by the construction traffic (highest under this alternative), resulting in overall net negligible or minor benefits to traffic levels. Slow-moving construction traffic could create minor impacts to visitors, particularly along the Schoodic Loop Road.

Removal of up to 15 base buildings, as well as the rehabilitation of other structures, could have short-term, minor to major impacts (dust, noise) for program participants. Restoration of about 40 acres of disturbed landscaping would have a minor or moderate benefit to visitors. Minor benefits to visitor experience would occur by creating a more campus-like and natural feel to the base area. Rehabilitation of the Rockefeller Building for education/interpretive programs and redesign of its landscaping could have minor to moderate localized benefits on visitor experience. Minor benefits for visitors would be realized as a result of improved parking and circulation at the base.

### **Socioeconomic Environment**

The expected 1% annual visitor increase to the Schoodic District, coupled with an increased number of program participants (13,500 per year and staff (30), would result in major benefit to area socioeconomics compared to No Action. Other economic benefits of unknown magnitude will likely occur from employee/visitor spending in nearby communities. Housing rentals by park staff may lend a negligible to minor benefit to the local economy. However, these benefits are offset by cumulative adverse impacts to spending, jobs, personal income, community, infrastructure, housing, schools, and the social fabric of the region resulting from base closure. These cumulative adverse impacts related to base closure are not as intense as those associated with No Action but are greater than those expected under Alternative C.

## **ALTERNATIVE C: COLLABORATIVE MANAGEMENT (PREFERRED)**

### **Natural Resources**

Vehicle use and use of boilers on the base, compared to when it was occupied by Naval personnel, would both be reduced, although both would be increased compared to No Action. Compared to No Action, impacts would be minor and adverse. Proposed use of base structures containing less than 1% asbestos would create slightly higher risk than would the other two alternatives (negligible) as more buildings would be occupied under this approach.

When compared to No Action, the increase in wastewater discharge to Arey Cove would result in moderate to major adverse impacts to water quality. However, when compared to prior navy operations, a minor or moderate benefit is realized. Demand for drinking water is greatest under this approach, resulting in negligible or minor impacts when compared to No Action.

Soil impacts caused by additional program trail use would be minor compared to No Action. Additional visitors could increase the likelihood of off-trail erosion with negligible to minor soil impacts. Impacts to soils from overall trail use in the study area are negligible to minor. Removal of base buildings and restoration of 16 acres of disturbed lands could result in a moderate, localized benefits to both soils and vegetation. As is also the case under Alternative B, implementation of a comprehensive hiking plan for the peninsula could result in a minor to moderate reduction in soil erosion when compared to No Action.

Increased trail use by program participants to and from Schoodic Head and elsewhere on the peninsula could create minor to major localized impacts to vegetation when compared to No Action. Directed program trail use could increase impacts to major, and limited access to guided tours could keep them to moderate.

A negligible to minor benefit to wildlife could occur from the removal of some base structures and restoration of 16 acres of land to a more natural state. The general increase in visitation over the life of the plan, including the addition

of 350 program participants per day, will likely result in minor impacts to wildlife in the vicinity of the base and adjacent trails. Increased overnight use of the former base facilities could have additional moderate impacts on some nocturnal mammals. As under Alternative B, directed or unregulated program use of the islands could result in minor or moderate impacts to wildlife; however, guided use or restrictions could reduce impacts to minor.

### **Cultural Resources**

Even with increased programming, vehicular traffic would be less than when the navy base was operational. Minor to moderate impacts are expected to the cultural landscape, particularly the Schoodic Loop Road for which maintenance needs are greater than under the other two alternatives. As is the case under Alternative B, negligible to minor, site-specific impacts to buried cultural resources are possible as a result of building removal on base; impacts may be mitigated to negligible by the presence of a professional cultural resource specialist during activities. Increased educational/interpretive visitor information related to historic preservation would result in negligible to moderate benefits, as is the case under Alternative B. The restoration to natural conditions of 16 acres of base land would result in negligible or minor benefits to the cultural landscape of the potentially eligible Schoodic Peninsula Historic District. Minor, site-specific benefits to the Rockefeller Building would be realized by landscaping sympathetic to the original 1934 design, a similar benefit as that under Alternative B.

The Collaborative Partnership Alternative C would expand maintenance capacity and thus provide greater protection for cultural resources.

### **Visitor Experience**

As under Alternative B, the increase in visitor use of the peninsula may result in major adverse impacts to visitor experience for Schoodic Point during peak-use times. Moderate impacts are expected at Frazer Point. When compared to No Action, overnight use of the base could have minor adverse impacts on views of the night sky.

Reductions in traffic related to base closure would provide negligible to minor benefits to

visitors; however, increases in traffic related to additional programming could result in moderate to major impacts to the visitor experience. These impacts may be offset by the proposed expansion of ferry and other public transit options. Construction traffic would be less severe than under Alternative B, resulting in only negligible to minor impacts to visitor experience. As is also true under Alternative B, minor benefits to visitor experience would result from creating a more campus-like and natural feel to the base area. Removal of 5–10 base buildings, as well as the rehabilitation of other structures, could result in minor to major impacts to visitor experience, an improvement over the impacts associated with Alternative B.

Restoration of 16 acres of disturbed landscape at the base would have a negligible to minor benefit to visitor experience. As is the case under Alternative B, rehabilitation of the Rockefeller Building for education/interpretive programs and landscaping sympathetic to the 1934 design could have minor to moderate localized benefits on visitor experience. Minor benefits for visitors would be realized under both Alternatives B and C as a result of improved parking and circulation at the base.

## Socioeconomic Environment

Compared to the other two alternatives, Alternative C would result in the most significant benefits to the socioeconomic environment of the general area. The expected 1% annual visitor increase to the Schoodic District, coupled with an even greater increase in program participants (31,500 per year) and staff (60), would result in a minor benefit to the socioeconomic environment when compared to the No Action alternative. Other economic benefits of unknown magnitude will likely occur from employee/visitor spending in nearby communities. Housing rental by park staff may create a negligible to minor benefit to the local economy, an effect similar to that under Alternative B.

The significant adverse impacts of base closure on spending in the area would be partially offset by additional revenue generated under this approach. Compared to No Action, minor benefits may be realized under this alternative for unemployment, housing vacancies, and the unfilled capacities of community infrastructure, schools, and the social fabric of the region.

### COSTS SUMMARY \*

	Alternative A <i>No Action</i>	Alternative B <i>NPS Management</i>	Alternative C <i>Collaborative Management</i>
Annual Operating	\$ 1,057,000	\$ 2,014,000	\$ 2,364,000**
Construction (Non-recurring)	\$ 0	\$ 9,547,000	\$ 11,538,000

\* Cost estimates are preliminary Class C based on year 2004 dollars. See Appendix B for more detail.

\*\* for Alternative C, it is assumed that the nonprofit organization would provide an additional \$812,000 for maintenance and utilities.





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# PART ONE: FOUNDATION FOR THE PLAN

## BACKGROUND AND INTRODUCTION

Acadia National Park includes 2,366 acres on the Schoodic Peninsula, approximately 45 miles by road from Bar Harbor, Maine, but only five miles by water across Frenchman Bay. Added to Acadia in 1929, the Schoodic District receives far fewer visitors than Mount Desert Island and, as a result, offers opportunities for quiet enjoyment. Visitor amenities include a 6-mile scenic drive along the coast, the Frazer Point picnic area, hiking trails, and a gravel road to Schoodic Head, the highest point on the peninsula, which offers panoramic views of the region. Schoodic Point, a popular destination at the southernmost end of the peninsula, draws those who seek to experience the ever-changing waters of the Atlantic Ocean from a rough pink granite shore laced with veins of basalt. The Schoodic District also includes Little Moose, Pond, Rolling, and Schoodic Islands.

Coastal Maine has long been a magnet for important American artists including Thomas Cole, who in his 1836 "Essay on American Scenery" called upon his fellow citizens to "appreciate the treasures of their own country." He sketched and painted Schoodic and inspired others, including Frederic Church and Fitz Hugh Lane, to experience a place as yet undiscovered by tourists. Working artists continued to spend time in the region through the 19th and 20th centuries, providing a fine visual record of its scenery.

Since 1935, the peninsula has also been home to the United States Navy, when a radio station was constructed to replace a similar facility on Mount Desert Island that stood in the way of construction of the Park Loop Road. The navy base, most recently known as Naval Security Group Activity Winter Harbor (NSGA), was located on 100 acres at Schoodic Point that had been part of Acadia National Park. When the navy announced its intention to close the base at Schoodic, the National Park Service (NPS) began planning to receive property that by law would revert back to NPS. The transfer took place on July 1, 2002.

This plan is being prepared while the Schoodic Peninsula is undergoing a great deal of change due to the navy's departure. Much of that change, while directly affecting the park, is being driven by a panoply of local, state, and other interests. The NPS is actively engaged in this ongoing dialogue about the future of Schoodic, and is grateful for the information provided and willingness of community leaders to participate in this planning process.

The base closure also involved 23 acres in Winter Harbor containing 80 units of housing and 451 acres in Corea, part of the town of Gouldsboro, where two operations buildings are surrounded by an important ecological area. These properties have transferred to the Town of Winter Harbor and U.S. Fish and Wildlife Service. Planning for their transition is being done in consultation with NPS, but is not described in this plan.

Plans for the Schoodic District acknowledge the significant loss of jobs and economic activity associated with closing of the navy base and support state and local economic development efforts while ensuring that new uses within the park are consistent with the laws and policies governing Acadia National Park.

## PURPOSE AND NEED FOR THE PLAN

The purpose of a general management plan is to provide the National Park Service with a basic foundation for decision making over a period of 10–15 years. A general management plan describes broad goals for the park and the management prescriptions (i.e., desired resource conditions and visitor experiences) that should be achieved and maintained over time. The purpose of the *Draft Schoodic General Management Plan Amendment and Environmental Impact Statement* is to describe the issues identified during the public planning process, and to present alternatives for long-range management actions to address them. The intent of this plan is to uphold the goals of

the 1992 General Management Plan while establishing a research and education center at Schoodic. The document also analyzes the possible environmental impacts associated with implementation. After public review and comment, the National Park Service will adopt a final *General Management Plan Amendment* for the Schoodic District that will amend the 1992 *General Management Plan* now in effect.

Acadia's *General Management Plan* did not anticipate the closure of the Naval Security Group Activity Winter Harbor, nor that there would be legislative direction for a research and education center at Schoodic, so it did not provide guidance for future use of navy buildings and land. With the U.S. Navy's departure, NPS must now decide how to convert this property from military to national park use. An added challenge is that the U.S. Navy provided important services to the park and adjacent communities, including snow plowing of park roads and assistance with fire protection and emergency response. Acadia National Park and the towns must now address these needs while dealing with the loss of a major generator of economic activity for the region.

Acadia's 1992 *General Management Plan* states that NPS will manage the Schoodic District to retain opportunities for low-density recreation, current use levels and parking lot capacities, and the existing naturalness and solitude. In addition, the plan states that NPS will not actively promote the Schoodic District nor add facilities to the area. All of the Schoodic District is zoned as a "Natural Area," which directs NPS to manage the area to conserve and protect natural resources and ecological processes, and provide for their use and enjoyment by the public. Because the navy property was an inholding not owned by NPS, it was not zoned.

The recent addition of the navy base property to Acadia National Park offers many opportunities for resource protection and visitor use. Its historic buildings and other facilities have great potential to support the park's mission; however, they also present management dilemmas for the entire 2,366-acre Schoodic District. While legislative direction calls for a research and education center at Schoodic, details about the scale and operation of the center are appro-

priately left to NPS to determine. The NPS conducted feasibility studies for the center as part of this planning process, and the resultant alternatives are based on operational assumptions developed during those studies as well as on natural and cultural resource information.

The NPS is undertaking a number of initial actions at the former navy base to prepare it for civilian use. Immediate needs being addressed include modifications to facilities for health and safety, providing for limited public use, maintaining buildings and utilities, and managing resources.

Because implementation funding is available now for buildings and site work on the former navy property, this document also serves as a development concept plan. It includes program assumptions about the nature of activities expected, design goals and guidelines, and a conceptual site plan for the initial work expected to take place within the next few years.

## **SCHOODIC EDUCATION AND RESEARCH CENTER**

Acadia National Park has been selected to house a research learning center as part of a nationwide NPS initiative called the "Natural Resource Challenge." Called the Schoodic Education and Research Center (SERC), this will be the primary use for the newly acquired facilities at Schoodic. Basic operational funding for the center is being provided and a range of possible activities is being studied in concert with this planning process. The centers offer on-site facilities for research and education and provide housing for program participants. The centers are also expected to involve collaborations with partners such as universities and research institutes, and to offer public programming for learners of all ages.

Most activities under consideration for SERC will be developed through partnerships with one or more organizations with goals compatible to those of Acadia National Park. Many such partnerships exist now but have been constrained by the lack of facilities for research and education elsewhere in the park.



Figure 1. The historic Rockefeller Building could be a focal point of the Schoodic Education and Research Center.

The former navy base at Schoodic was identified as having the potential to provide the necessary facilities and support functions for an exceptional learning and research community (Figure 1). SERC is common to all the alternatives described in this plan, but its management, scale, and cooperation with partners will vary.

The purpose of SERC is to promote and facilitate education and research that is consistent with the mission of NPS. This plan describes three different scenarios for how SERC might develop. SERC's programs and activities would enhance the purposes and values for which Acadia National Park was established. A more detailed description of SERC under Alternative C is provided in Appendix G.

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## **PARK SETTING**

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This section gives an overview of the natural and cultural resources of the Schoodic District of Acadia National Park and a brief chronology of its history and development. Also included are descriptions of existing park facilities and of the visitor experience. For more detailed information on those resources that might be affected by the actions proposed in this plan, please see Part Three: Affected Environment.

## **GEOGRAPHY AND CLIMATE**

Acadia National Park is located on the coast of Maine and includes approximately 35,500 acres (Figure 2). Most of the park is located on Mount Desert Island and covers about half of its area. The park also includes about 2,400 acres on the Schoodic Peninsula; 2,700 acres on Isle au Haut; and all or parts of 16 smaller coastal islands (Figure 2). The NPS also manages about 180 conservation easements that protect over 11,000 acres on islands in Knox County, and on islands and the Schoodic Peninsula in Hancock County.

The general management plan amendment and environmental impact statement address the 2,366-acre Schoodic District of Acadia National Park, which is the only portion of the park located on the mainland. The Schoodic District is located entirely within the Town of Winter Harbor on the southern tip of the Schoodic Peninsula. The peninsula lies within the Eastern Coastal Region of the State of Maine, which extends from Mount Desert Island to Canada in a 20-mile-wide band along the Gulf of Maine (McMahon 1990).

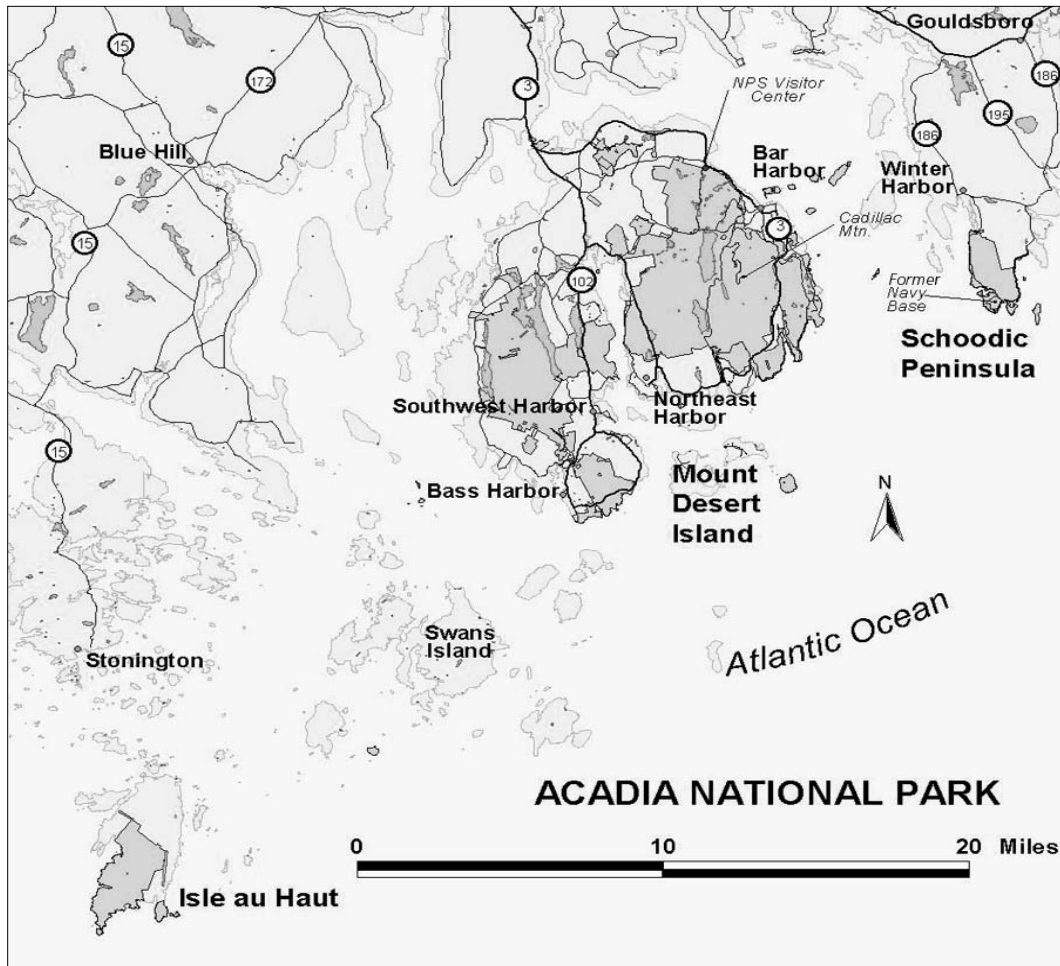


Figure 2. Acadia National Park

The climate of the Eastern Coastal Region is strongly moderated by the Gulf of Maine. Winter temperatures are warmer relative to those a few miles inland and summer temperatures are relatively cooler. The area is often shrouded in fog brought by onshore winds, which help keep humidity comparatively high. The range of temperature extremes is narrower than in inland Maine, and the frost-free season is longer with less snowfall overall. The mean annual temperature at Acadia National Park for 1940–1980 was 46°F (8°C) (Kahl et al. 2000). Annual precipitation for the same period averaged about 48 inches and ranged from 39 to 73 inches. In summer, the area experiences convective storms with intense rainfall of short duration. During the rest of the year, the area experiences broad frontal systems of less intense, longer-lasting rainfall (Kahl et al. 2000).

## **NATURAL RESOURCES**

### **Geology and Topography**

The Schoodic Peninsula is a product of geological upheavals, glacial scouring, and inundation by the sea. The bedrock of the Schoodic Peninsula and most of the surrounding islands consists of fine-grained pinkish granite. Huge fractures have occurred in the granite along the shoreline, creating gigantic slabs and blocks. Within some of these fractures are black basalt dikes, which are the product of intrusive, solidified magma. Measuring up to 25 feet thick, these dikes are very prominent at Schoodic Point. Wave action has eroded the relatively softer basalt in many spots, resulting in deep, narrow chasms and sea cliffs. This wave action has also rounded block-like fragments into cobbles at pocket beaches on the peninsula's eastern shoreline.

The topography of the peninsula is varied and rugged. The highest point on the peninsula is



Figure 3. Schoodic Peninsula and surrounding islands

Schoodic Head, at an elevation of 440 feet (134 m). Another prominent feature is The Anvil, which is located in the southeast portion of the peninsula near Blueberry Hill. The most recent period of glaciation was 18,000 years ago and contributed to the sheer cliffs at Schoodic by plucking off granite blocks as they advanced. Glaciers also modified ridges through scouring to form hills sloping more gently to the north and northwest and more steeply to the south and southeast, as seen on Schoodic Head.

The effect of the area's geologic history is a diverse landscape complete with many small bogs and wetlands, upland forests, ridges, and rugged coast that offers a variety of habitats to intertidal plants and animals. There are several intermittent streams that flow west from the peninsula's interior to feed the wetlands and ponds. The largest of these is Frazer Creek, which drains to the northwest into Mosquito Harbor at Frazer Point (See Figure 4).

The Schoodic District includes four islands in addition to the mainland area (Figure 3). Little Moose Island is 54 acres (22 ha) and lies on the southeastern tip of the peninsula. Pond Island is 14 acres (5.8 ha) and lies immediately west of the peninsula. Schoodic Island is 67 acres (27 ha) and lies 0.75 miles (1.2 km) southeast of the peninsula. Rolling Island is 5 acres and centered off the east side of the peninsula.

### Adjacent Lands

The park boundary encompasses only a portion of the Schoodic Peninsula. Lands immediately north of the boundary are largely undeveloped and possess many of the same characteristics as those within the park. Vegetation is similar and the forested upland and coastal resources provide habitat for the same plants and animals observed within the park. While some of the privately owned islands off Schoodic are protected by conservation easements, their level of protection varies and NPS has no jurisdiction over their future use. Maine Shoreland Zoning

and other local and state regulations provide a certain degree of protection, but future use of these lands for incompatible purposes could threaten park resources.

## **Plants**

The park lies in a broad transition zone between southern deciduous and northern coniferous forests. The combination of the climate and varied topography has resulted in rich species diversity at Schoodic. A two-year study of vascular and forest plant species of the Schoodic Peninsula found 343 species, including 75 non-native species (Mittelhauser et al. 1995, Spencer-Famous and Perera 1999). The most abundant vegetative community on the peninsula is the maritime spruce and fir forest. The most common species is red spruce, and associated tree species include primarily balsam fir, paper birch, and white spruce. Some of the more common species in the understory include blueberry, mountain cranberry, mountain ash, starflower, Canada mayflower, bunchberry, and wild raisin. For the most part, the herb and shrub layer in these forests is poorly developed, and it is mosses instead which are abundant in the understory, especially where the microclimate is humid and cool.

The Maine Natural Areas Program (MNAP), which is administered by the Maine Department of Conservation, has identified two "Rare or Exemplary Natural Communities" at the Schoodic District: Jack Pine Woodland and Maritime Shrubland. The Jack Pine Woodland is rare (20–100 occurrences) in Maine because the dominant tree species, jack pine, is at the southeastern limit of its range. A significant stand of jack pine is located on the eastern face of Schoodic Head. The southern half of Little Moose Island contains an exemplary Maritime Shrubland community, which is a shrub-dominated habitat along seaside bluffs exposed to onshore winds and salt spray. The MNAP has also documented five rare plant locations on the southern portion of the Schoodic Peninsula, including two on Little Moose Island.

## **Animals**

The Schoodic District provides habitat for a variety of animals. Common mammals include moose, deer, fox, coyote, bat, beaver, weasel, vole, shrew, squirrel, and hare. Ninety-six species of migrating and breeding birds were

counted in studies conducted on the Schoodic Peninsula between 1995 and 1996, including cormorant, osprey, eider, heron, gull, and many species of small woodland birds. Ponds and wetlands provide habitat for amphibians and reptiles, such as salamanders, frogs, and snakes. The intertidal zone provides critical habitat for as many as 40 species of invertebrates. The Maine Department of Inland Fisheries and Wildlife has identified a number of critical wildlife habitats at Schoodic, which are areas that are essential to the conservation of state endangered or threatened species, including the bald eagle.

## **CULTURAL RESOURCES**

### **Research and Documentation**

Section 110 of the National Historic Preservation Act requires federal land managers, in consultation with State Historic Preservation Officers (SHPO), to establish programs to locate, inventory, and nominate to the National Register of Historic Places all properties that appear to qualify. The U.S. Navy and National Park Service have initiated or completed a number of these studies within the former navy base and NPS lands on the Schoodic Peninsula.

The U.S. Navy completed a Historic and Archaeological Resources Protection Plan in 1996, and a Cultural Resources Survey in 1999. The latter study consisted of an archeological reconnaissance and a survey of buildings and structures on the former navy base at Schoodic Point, as well as at the Winter Harbor and Corea properties. The report found that only two properties—the Rockefeller Building and its associated powerhouse—were eligible for listing in the National Register. In supplemental documentation submitted to the SHPO in 2000, the Navy also recommended that there were no buildings or structures deemed significant in a military history sense, or in Cold War historic context. The SHPO concurred with these findings.

The report identified a historic farmstead that had likely been obliterated by the construction of a baseball field. Overall, the report stated that the potential for archeological resources was low. The SHPO also concurred on this assessment. The Navy then completed a



National Register nomination for the Rockefeller Building and powerhouse, which the SHPO reviewed. The NPS will submit the final nomination to the Keeper of the National Register of Historic Places. In addition, NPS undertook a cultural landscape inventory of the former navy base property in 2000. It recommends that the base (excluding the Rockefeller Building and powerhouse) contains no significant cultural landscape components and is not eligible for listing in the National Register.

Four NPS projects are underway that will document and evaluate many of the cultural resources in the Schoodic District as a whole. An ethnographic overview of Acadia National Park (including the Schoodic District) is being prepared in consultation with the Maine tribes. This effort will document the tribes' historic and present links with the landscape. The information will include traditional cultural places, resource use, and other activities, place names, and significant events. If sacred sites are identified, they will be designated for preservation by NPS and remain confidential. Secondly, a park-wide archeological overview and assessment is being prepared. Based on preliminary archival research, all known and potential sites at the Schoodic District have been recorded and described. All known sites have been located in the field and mapped with a geographic positioning system (GPS). This project will recommend a strategy for completing a comprehensive field survey of the entire Schoodic District. A third project nearing completion is a draft National Register nomination of the Schoodic Peninsula Historic District. This nomination captures historical information on significant landscape features and buildings that date from the late-19th to mid-20th century. The fourth study in progress is a cultural landscape inventory of the Schoodic District, which mirrors the National Register nomination and recommends that the district be considered eligible for the National Register.

A number of ongoing studies to be completed within the next year or two will identify and document many of the cultural resources in the Schoodic District. However, there are research gaps that need to be filled. The following projects are planned for Acadia National Park at Schoodic: a comprehensive archeological field

survey, a historic structure report for Rockefeller Building and powerhouse, and a cultural landscape report for the Schoodic District. The NPS will also develop other relevant historical contexts, such as American Indian (Wabanaki) use and early Euro-American settlement, to evaluate archeological resources in particular.

### **Archeological Resources**

Although a comprehensive survey of archeological resources on the Schoodic Peninsula is yet to be completed, evidence of human occupation of areas of Maine and the rest of New England is known to date from as far back as 11,500 years ago when ice began to withdraw from the Gulf of Maine region. Coastal groups living 3,000–6,000 years ago were separate from interior groups in what is now Maine.

Archeological sites in the study area are primarily shell middens (i.e., waste piles of shells from clams, oysters, and other shellfish), which indicate American Indians occupied the Schoodic Peninsula at least seasonally to gather shellfish and other marine resources. Although tribes were primarily nomadic and followed food sources, evidence suggests the possibility that some coastal people occupied sites year round, especially in areas accessible by boat (Berger & Assoc., Inc. 1999). Other archeological sites related to 18th- and 19th-century settlements exist in several areas within the Schoodic District.

### **Early Settlement**

Many European explorers in the 16th and 17th centuries reported contact with the American Indians in what is now Maine, and both France and Britain had small colonies in Hancock County and claimed the land as theirs during the 17th century. The economy of the area was based on fishing and lumbering, as the soils were poor for growing grains. By the 19th century, alternative agricultural crops such as cranberries and orchard fruits, along with meat and dairy products were cultivated in the region. By 1860, the seven coastal villages of Gouldsboro-ough (sic), which at the time included Winter Harbor, had roads, but this was not true of the southern reaches of the peninsula where the park is located today.

The first recorded non-American Indian settler in the study area was Thomas Frazer, an African American who established a salt works near the mouth of Frazer Creek by 1790. The same area was later inhabited by a small fishing community of about 50 people. The lower peninsula had no permanent inhabitants until the 19th century when the Arey family built two homes and another family occupied Little Moose Island. By the turn of the 20th century, a house and barn were built near what is today the ball field on the former navy base.

By the early 1890s, in response to demand for summer "cottages" in the area, Maine native and Wall Street financier John G. Moore purchased much of the land that is now inside the park on Schoodic. In preparation for its development, he constructed a scenic road which ran from Frazer Creek south to West Pond Cove and east to Schoodic Head. Moore died before he could begin development of the peninsula, and this—combined with grassroots efforts to conserve Mount Desert Island and later the Schoodic Peninsula—kept the land from development well into the 20th century. His daughters donated the property to the Hancock County Trustees of Reservations.

### Park Development

In 1916, conservation efforts resulted in the establishment of Sieur de Monts National Monument on Mount Desert Island, which later expanded to become Acadia National Park. Congressional legislation in 1929 allowed for the acquisition of land for the park in other parts of Hancock County. Within a month of the enactment of the law, the Hancock County Trustees of Reservations donated approximately 2,050 acres to the NPS.

Near the same time as the donations of land at Schoodic, John D. Rockefeller, Jr. was working with the park to help create a park loop road on Mount Desert Island. The road would follow the coastline and

provide access to many scenic vistas. However, a complete park loop road was not possible because of the U.S. Navy's radio communications station at Otter Cliffs. As a result, NPS arranged for the U.S. Navy to move the station to Schoodic and constructed most of the visitor facilities that exist today outside of the former navy base, including a 6-mile Schoodic Loop Road in 1933-1935.

The labor supplied by the Civilian Conservation Corps under the New Deal also completed four hiking trails with trailheads on Schoodic Head. These trails each follow their historic alignment and illustrate the high quality of workmanship and adherence to NPS standards and specifications. The development of a parking area, rest room, and pumphouse at Schoodic Point, the primary destination for most visitors to the Schoodic District, appears much as it did when construction was completed in the 1930s. This is

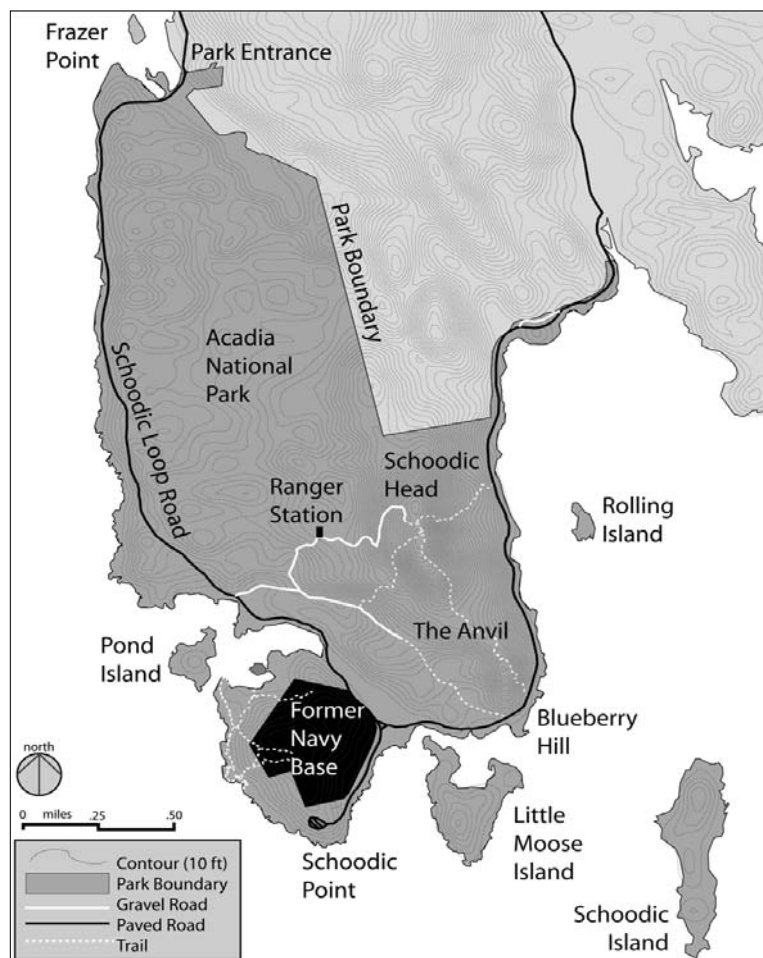


Figure 4. Acadia National Park: Schoodic District

true for a small parking area and entrance road at Blueberry Hill and the summit overlook at Schoodic Head. A second construction phase in the study area took place during the mid-1960s in response to the 50th anniversary of the National Park Service. The Mission 66 program work included a modern bridge over Frazer Creek and a picnic area at Frazer Point.

### **Navy Base Development**

The history of the navy base dates back to the early 20th century. Alessandro Fabbri operated a small amateur radio receiving station at Otter Cliffs on Mount Desert Island and wanted to assist his country during World War I. The U.S. Navy offered Fabbri a commission in exchange for the station and soon found the station to be a critical link in maintaining transatlantic messages during weather conditions where other receiving facilities along the coasts were unable to operate. Over the years, the facility grew into a radio communications station for the U.S. Navy.

Congress authorized an exchange of land between NPS and the U.S. Navy in 1935. In addition to the original transfer of 26 acres, NPS transferred an additional 152 acres to the U.S. Navy in 1947 to allow for the expansion of the base during the Cold War. As part of the arrangement, NPS constructed the initial navy facilities, including the Rockefeller Building, which Grosvenor Atterbury designed in the same style used for the two carriage road gatehouses in the park on Mount Desert Island.

The construction of buildings during the 1940s and 1950s included a multipurpose administration building, barracks, commissary, gatehouse, pumphouse, and communications receiving station. In the early 1960s, the U.S. Navy completed the construction of an antenna array in nearby Corea and relocated all of the operational activities from Schoodic to this new site. At that point, new developments at Schoodic consisted primarily of amenities, such as the ball field, picnic shelter, and gymnasium. In the 1970s, the Schooner Club, a medical clinic, bowling alley, and theater were added. In 1977, the U.S. Navy returned approximately 81 acres of land along the shoreline to NPS. In the past 20 years, additions have primarily been housing related. Schoodic Shores is a housing project completed in 1980, the barracks were expanded

in 1989, and three duplex recreational cabins were added in 1990.

As of 1997, the navy base employed 500 personnel; however, in 2001 the U.S. Navy announced its intent to close the base, which occurred on June 30, 2002. The base closure also involved 23 acres in Winter Harbor containing 80 units of housing and 451 acres in Corea, part of the town of Gouldsboro, where two operations buildings are surrounded by a critical ecological area. These properties will transfer to the towns of Winter Harbor and Gouldsboro and the U.S. Fish and Wildlife Service.

### **Historic Properties**

A proposed Schoodic Peninsula Historic District, including all of the national park lands in the Schoodic District except the 100-acre former navy base property and four coastal islands, is considered eligible for listing in the National Register of Historic Places as a significant cultural landscape. The proposed Schoodic Peninsula Historic District is historically significant because it was conceived and designed as a park and recreation area beginning in the late 19th century. The National Register nomination was prepared by NPS in consultation with the Maine Historic Preservation Office and will be forwarded to the keeper of the National Register.

The Rockefeller Building and powerhouse are the only two buildings located on the former navy base that have been determined eligible for listing in the National Register of Historic Places. They were designed by Grosvenor Atterbury, architect of the distinctive French Norman-style gatehouses on the Park Loop Road on Mount Desert Island. The original landscape surrounding the buildings lacks historic integrity (NPS Cultural Landscape Inventory, 2001).

The buildings are historically significant because they are closely associated with important persons and events concerning the development of Acadia National Park and the establishment of the U.S. Navy radio station. They also embody distinctive characteristics of design and construction that possess high aesthetic qualities. The buildings were nominated to the National Register by the U.S. Navy with the concurrence of the Maine Historic Preservation Office (Letter of 9/20/2000).

## **PARK FACILITIES**

The primary means of access to the Schoodic District is via the Schoodic Loop Road, which is a 6-mile scenic drive that skirts the rugged coastline (Figure 4). The road and scenery have changed little since their initial construction between 1933 and 1935. Beginning at the northwestern boundary of the park at Frazer Creek, the road provides visitors with a classic Maine coast vista of rocky shoreline, islands, and a lighthouse. Frazer Point provides a picnic area with parking, restrooms, interpretive waysides, and a seasonal dock for small recreational boats. The road continues one-way in a counterclockwise direction around the peninsula using a harmonious mix of local materials and was designed to take advantage of the dramatic ocean views. A 1-mile gravel spur road leads to the top of Schoodic Head where a small circular drive provides parking for an overlook and trailhead. A ranger station and several related structures are located off the road to Schoodic Head. A two-way paved spur road leads to Schoodic Point at the southern end of the peninsula. This popular destination offers parking, restrooms, and interpretive waysides. Blueberry Hill is a parking area located just beyond Schoodic Point that provides access to the shoreline and a trailhead.

The park maintains 2.6 miles of hiking trails that emanate from Schoodic Head. The four named trails (i.e., Anvil Trail, Alder Trail, East Trail, and Schoodic Head Trail) offer a variety of hiking opportunities and panoramic views. A network of informal social trails on Little Moose Island poses challenges for resource protection if fragile vegetation is to be protected from trampling. The former navy base occupies a large portion of Big Moose Island, which is actually connected by a wetland to the Schoodic Peninsula (Figure 6). The former navy base contains 46 buildings (212,300 square feet), 350 parking spaces, and other infrastructure that includes offices, housing, recreational facilities, and support and utility systems. The base is heavily forested, with winding roadways opening into large clearings containing buildings and parking areas of varying sizes. The site was developed over 67 years, and the buildings and structures range in date from 1935 to 2001. As a result, the built environment is very heterogeneous, with buildings constructed in varying styles and forms using many

different building materials, including wood, brick, metal, and concrete. Most of the former navy structures are utilitarian, and lack historical reference to Acadia National Park or the early buildings of the station itself.

All buildings on the former navy base are accessible by road and served by ample parking areas. There is no formal pedestrian circulation system and many of the buildings are inaccessible to the handicapped. Pedestrians must share the roads with automobiles, and informal foot trails run through the wooded areas connecting some of the buildings. The U.S. Navy constructed walking trails to provide access from the base to various points along the shoreline of Big Moose Island.

Although much of the former navy base remains heavily wooded, the built areas are a conglomeration of varying building types surrounded by asphalt drives and parking areas, with little or no vegetation. The Rockefeller Building and its generator house are the only structures that show a definite relation to Acadia National Park.

## **VISITOR EXPERIENCE**

The Schoodic District is zoned as a "Natural Area" in the 1992 *General Management Plan* and managed primarily for conservation and resource protection with limited public facilities. In 2000, the Schoodic District of the park experienced approximately 235,000 recreation visits. This is slightly lower than the annual average of 254,000 recreation visits over a 13-year period (1990–2002). A recent study (DOT 2001) predicted visitation to Schoodic would increase slowly, by about 500 per year to average nearly 247,000 in 2005 and nearly 280,000 in 2015.

The University of Vermont completed the Schoodic Peninsula, Acadia National Park, Visitor Study 2000–2001 (Manning et al. 2002) to gather information to assist NPS in developing a new management plan for the Schoodic District of Acadia National Park. The objectives were to collect information on the number and type of visitors and to gain information that will help formulate standards of quality for visitor experiences.

Most visitors stay on the Schoodic Peninsula only one day and spend nearly three hours at a time in the Schoodic District. The most popular locations to visit are Frazer Point, Schoodic Point, and Blueberry Hill. Visitor and automobile counts indicate that peak visitation occurs at the selected count sites between 1:00 p.m. and 4:00 p.m. In the Schoodic District, the primary activities for typical visitors are watching the surf and driving on the scenic loop around the end of the peninsula. Other common activities include photography, observing nature, bicycling, and picnicking. However, visitors stated that taking in the natural scenic beauty was their primary pastime.

The most frequently cited positive qualities of Schoodic are the pristine natural beauty and scenery coupled with the quiet atmosphere and low levels of visitation. People come to Schoodic with the expectation that it will be more peaceful and less crowded than the Mount Desert Island portion of Acadia National Park. Most visitors leave the Schoodic District with their expectations fully met. Those who are not fully satisfied cite overcrowding at Schoodic Point as a problem.

**TABLE 1. BASELINE AND PROJECTED USE DATA**

Schoodic District—Baseline Data Visitor & Vehicular Use in 2000	3 Peak Months (July/Aug/Sept)	9 Other Months	Total
Average daily recreation visits	1,369	416	653
Annual recreation visits	122,345	112,555	234,900
Average daily recreation vehicles	452	154	229
Annual recreation vehicles	40,782	41,764	82,546
Average daily non-recreation vehicles	350	350	350
Annual non-recreation vehicles	31,446	94,338	125,784
Average daily vehicles	802	504	579
Annual vehicles (all)	72,228	136,102	208,330

Schoodic District Projected Use Data for 2010–15	Alternative A	Alternative B	Alternative C
Total program participants on typical day (staff + students)	20	150	350
Annual program participants	1,800	13,500	31,500
Staff (NPS + partners)	5	30	60
Lodging for participants & staff (single occupancy per bedroom)	22	90	190
Total parking spaces	350	350	350
Projected average day recreation use <sup>1</sup>	718 + 20 = 738	718+150 = 868	718+350 = 1068
Projected peak day recreation use <sup>1</sup>	1,526	1,656	1,858
Projected total recreational use	258,500	272,000	290,000
Projected average daily vehicles (all)	454	519	619
Projected annual vehicles (all) <sup>2</sup>	154,592	160,442	169,442

<sup>1</sup> Assumes 3 months at high rate of use; lower rest of the year

<sup>2</sup> Assumes recreational vehicles increase by 10%; program users arrive 2 per car on average and that non-rec vehicles are reduced by 50% from baseline year

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## **PARK MISSION, PURPOSE, AND SIGNIFICANCE**

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### **PARK MISSION**

Acadia National Park's mission statement is based on the park's enabling legislation and its *General Management Plan* (1992) which remains in effect.

**The National Park Service at Acadia National Park protects and preserves outstanding scenic, natural, scientific, and cultural values for present and future generations through programs, facilities, and services. It also provides programs and opportunities for non-consumptive, resource-based recreation and education for an increasingly urban population (NPS 1992a).**

### **PURPOSE**

Acadia National Park has three main purposes. One is to protect and conserve the land and water resources, the scenery, the natural and historic objects, the wildlife, and the undeveloped character of the lands within the legislated park boundary. Another is to promote and regulate the use of the park for the benefit and enjoyment of the public in such manner and by such means as will leave the park resources unimpaired for the enjoyment of future generations. Finally, NPS is directed to protect and preserve the scenic, ecological, historic, archeological, and cultural resources of the Acadian archipelago and to limit development of the islands and preserve their natural qualities and traditional resource-based land uses.

### **SIGNIFICANCE**

A rich combination of cultural and natural features and exceptional scientific, educational, and recreational opportunities contribute to the character and significance of Acadia National Park, the first national park east of the Mississippi and the only national park in New England.

When President Woodrow Wilson set this area aside as a national monument, he cited the

historic interest associated with Samuel de Champlain's 1604 landing on Mount Desert Island. He also cited the great scientific interest of the island's topography, geology, wildlife, and vegetation. Acadia National Park has a variety of significant resources, including its landscape, air and water quality, biological diversity, cultural heritage, historic properties and museum collection. The park's coastal and island landscape is unequaled along the Atlantic shore of the United States. Mountains, lakes, and wooded valleys add character to the land. The park's islands provide nesting sites and critical habitat for a great diversity of plants and animals, including species of state and national significance.

The cultural heritage of the park is equally important and includes resources related to American Indians, French and British settlers, and the wealthy Americans of the late 1800s and early 1900s who established summer colonies, founded the park, and contributed to the creation and development of the conservation movement. The surviving historic features and designed landscapes, such as those of the park's trail system and Schoodic Loop Road, are important because of their history, durability, and uniqueness. They commemorate those who designed and built them.

Acadia National Park also offers scientific research value; the park provides a variety of opportunities to conduct research and monitor resources. There is a multidisciplinary database at the park that serves as the scientific foundation for ecosystem research and monitoring programs. An extensive scientific bibliography dates back to the late 19th century. Today, an expanding geographic information system and ongoing air, water, wildlife, and vegetation monitoring programs demonstrate the park's continuing and important role in scientific endeavors. Acadia National Park offers excellent opportunities for educating visitors about significant and varied resources. Access to an array of sites with scenic, scientific, natural, and historic interest is provided by a network of carefully designed hiking trails, carriage roads, and scenic drives. Visitors participate in numerous recreational activities such as camping, hiking, bicycling, cross-country skiing, horseback and carriage riding, kayaking, canoeing, and sight-seeing. People of all ages are attracted to a

broad spectrum of interpretive activities, including guided walks, amphitheater presentations, environmental education programs, and outreach activities.

### **Schoodic District**

The Schoodic District exemplifies the values and resources described in Acadia National Park's mission and purpose statements. Visitors cherish Schoodic for its peaceful character and outstanding scenic beauty. Schoodic offers visitors exceptional views of the rocky coast and surrounding islands. It is a favored spot for watching high surf and enjoying views to the open ocean from its lightly traveled scenic road that ends at Schoodic Point. The summit of Schoodic Head, which is accessible by gravel road and hiking trails, provides another outstanding scenic overlook.

Studies reveal that most of the Schoodic District (outside of the 100-acre former navy base property) is eligible for listing in the National Register of Historic Places as a historic district based on its significant cultural landscape. The proposed Schoodic Peninsula Historic District is historically significant because it was conceived and designed as a park and recreation area beginning in the late 19th century. Outside of the base, the appearance and visitor experience of the Schoodic District has remained relatively unchanged since 1940, when NPS completed its first period of development (NPS, National Register Nomination for Schoodic Peninsula, 2001).

The Rockefeller Building and powerhouse are the only two buildings located on the former navy base that are eligible for listing in the National Register of Historic Places. The buildings are historically significant because they are closely associated with important persons and events concerning the development of Acadia National Park and establishment of the U.S. Navy radio station. The buildings also embody distinctive characteristics of design and construction that possess high aesthetic qualities.

The Schoodic District contains many areas of critical habitat for a variety of plant and animal species, including five state-listed rare plants, and the federal and state threatened bald eagle. The State of Maine has also designated two "Rare or Exemplary Natural Communities" at

Schoodic: a Jack Pine Woodland on Schoodic Head and a Maritime Shrubland on the southern portion of Little Moose Island. The state has identified extensive habitat within the Schoodic District that is essential or significant for wildlife, including the shorelines of West Pond, East Pond, and Schoodic Point; the Frazer Creek estuary; and Schoodic and Rolling islands. The more remote areas of Schoodic's shoreline contain pristine intertidal zones that are robust with plant and invertebrate species from lack of human disturbance.

The Schoodic District also protects exemplary geologic features, such as sea cliffs, sea stacks, cobble beaches, diabase dikes, and a glacially carved landscape.

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### **SCHOODIC LEGISLATIVE HISTORY**

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Acadia National Park began with the establishment of Sieur de Monts National Monument by Presidential Proclamation 1339 in 1916 (40 Stat. 1173), which was followed by the redesignation of the national monument as Lafayette National Park in 1919 (45 Stat. 1083). In 1929, legislation (45 Stat. 1083) changed the name to Acadia National Park and established NPS's authority to expand the park through donations of property within Hancock County and certain islands in Knox County. This allowed NPS to accept the donation of more than 2,000 acres on the Schoodic Peninsula as an addition to Acadia National Park.

Acadia's boundary was fixed in 1986 by Public Law 99-420. The law authorizes the Secretary of the Interior to acquire conservation easements on parcels of land adjacent to the park on Schoodic Peninsula, and on the islands of Hancock County, by purchase from a willing seller or by donation. The law sets out criteria for such parcels, which must possess one or more of the following characteristics: (A) important scenic, ecological, historic, archeological, or cultural resources; (B) shorefront property; or (C) largely undeveloped entire islands.

In addition to the enabling legislation for Acadia National Park, several laws have been enacted that are specific to the Schoodic District. In

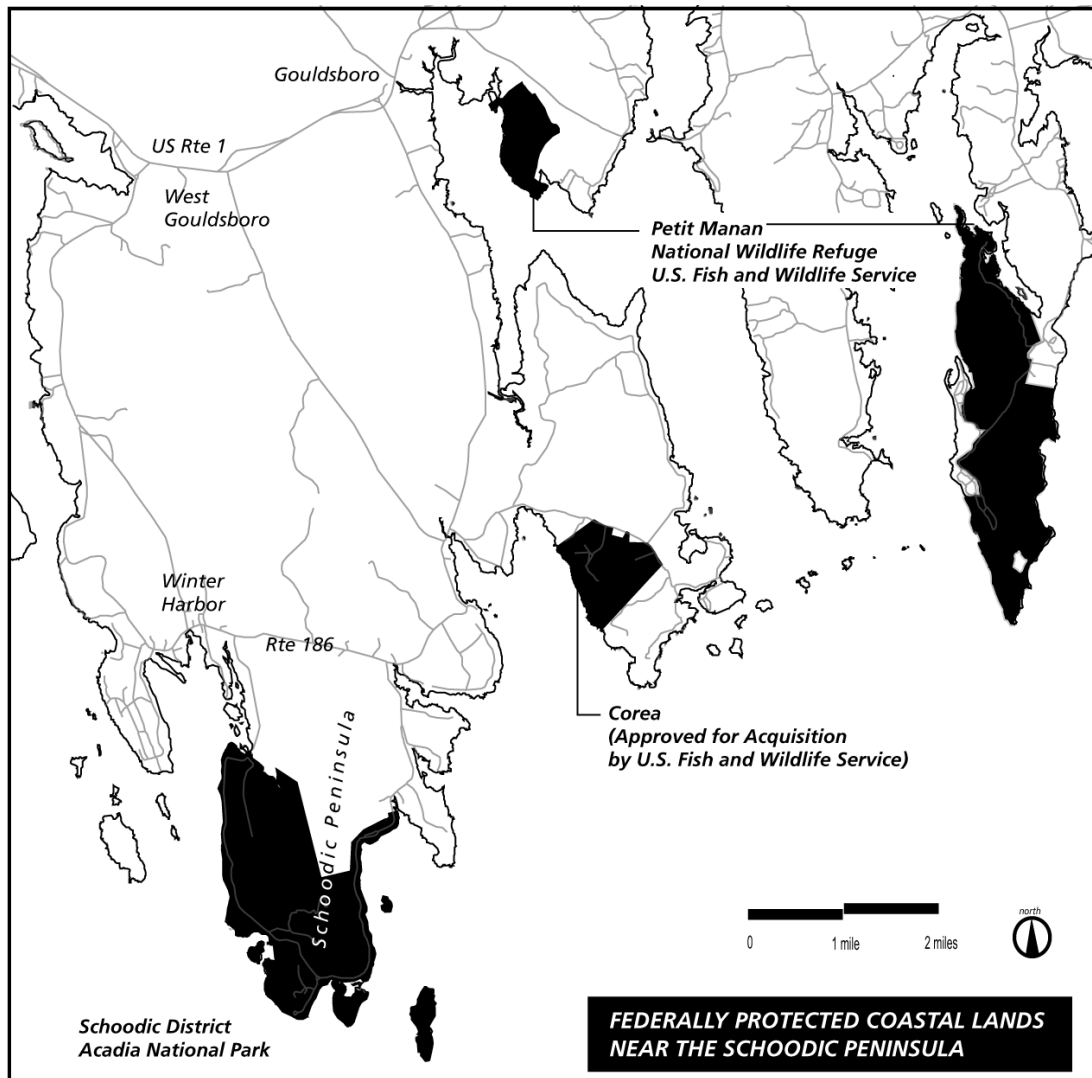


Figure 5. Research and education programs will be enhanced by the presence of several federally protected areas in the Schoodic vicinity.

1935, the first of these laws (49 Stat. 795) provided for the exchange of land between NPS and the U.S. Navy. The act transferred the control and jurisdiction of the original 26-acre site within the Schoodic District to the U.S. Navy for "naval radio purposes." In 1947, legislation (61 Stat. 519) transferred an additional 152 acres to the U.S. Navy with the provision that the land would revert to the park should it become "surplus to the needs of the Department of the Navy." In 1977, the U.S. Navy exercised this provision and transferred 81 acres back to the park. Finally in 2002, Section 2845 of Public Law 107-107 authorized transfer of the original parcel back to the park without consideration, along with personal property associated with the land. The law directed the U.S. Navy to transfer this parcel concurrently with the remaining land it had acquired in 1947. The U.S. Navy transferred

control and jurisdiction of its remaining land within the park (100.1 acres) to NPS on July 1, 2002.

Other legislation related directly to the Schoodic District involves the appropriation and use of funds from the Department of Defense. Public Law 107-117, enacted on January 10, 2002, provided an appropriation of \$4,000,000 to the Department of Defense, Office of Economic Adjustment, for the Naval Security Group Activity Winter Harbor. Public Law 107-206, enacted on August 2, 2002, clarified the intended use of the funding. The legislation directed the Secretary of Defense to obligate the funds made available under P.L. 107-117 for the conversion of the navy base at Schoodic to a research and education center for Acadia National Park. This includes the preparation of



a plan to reuse the navy base for purposes that will benefit the local communities and visitors to the park, and stimulate important research and educational activities. Additional clarification was needed to provide a portion of the funding directly to the local community for economic readjustment. Public Law 107-248, enacted on October 23, 2002, authorized the Secretary of Defense to use the funding for community adjustment activities related to the closure of the navy base and the reuse of the base as a research and education center consistent with the purposes of Acadia National Park.

Acadia's *General Management Plan* (1992) provided the first broad management direction for the Schoodic District. The goals for the Schoodic District are to retain opportunities for low-density recreation, and preserve its existing naturalness and solitude. The plan stated that NPS will "preserve the relatively undeveloped quality of the park on the west side of Mount Desert Island and on Schoodic Peninsula and the islands." It also specified that "High density recreation will be supported in specific areas on the east side of Mount Desert Island, but the present character elsewhere on the island, on Schoodic Peninsula, and on the offshore islands will be retained. No new high-density recreation areas will be developed." This plan will amend Acadia's *General Management Plan* to address the reuse of the former navy base and mitigate the potential impacts of its reuse. The intent of this plan is to uphold the goals of the 1992 *General Management Plan* while carrying out the new legislative mandates to establish a research and education center at Schoodic. This plan does not supersede the guidance and policies provided by the park's *Commercial Services Plan* (April 2000), *Water Resources Management Plan* (April 2000), and *Hiking Trails Management Plan* (February 2002) as they may apply to the Schoodic District.

In addition to the property located within the Schoodic District, the former navy base includes 23 acres in the Town of Winter Harbor and 451 acres in the Town of Gouldsboro. Public Law 107-107 authorizes the transfer of these properties to the respective towns. In preparation for the transfer, the Eastern Maine Development Corporation (EMDC) completed a reuse study in 2001, "Reuse Opportunities and Strategies:

Corea Naval Base and Navy Housing in Winter Harbor," to examine the range of opportunities for their economic redevelopment (EMDC 2001). The study addresses the reuse of 80 units of housing in Winter Harbor and two large operation buildings in the village of Corea (Gouldsboro).

In July 2003, the U.S. Navy completed an environmental assessment for the transfer and reuse of these properties based on potential reuses identified in EMDC's study, which resulted in a Finding of No Significant Impact. The Town of Gouldsboro plans to release approximately 400 acres of undeveloped land at the Corea site to the U.S. Fish and Wildlife Service as an addition to the Petit Manan National Wildlife Refuge. Known as Corea Heath, this area is unusually rich in species diversity because it has had hardly any human use for the past 70 years. The NPS has cooperated with the towns, EMDC, and U.S. Fish and Wildlife Service on their reuse plans and will continue to coordinate the reuse of the former navy properties, but the Winter Harbor and Gouldsboro sites are not within the direct purview of this plan (Figure 5).

The action alternatives presented in this plan support the State of Maine's initiative to build a knowledge-based economy and raise per capita income to the national average. As outlined in the State Planning Office strategic plan, "30 and 1000" (Maine State Planning Office 2001), the basis of the initiative is to increase the percentage of Maine's adults with four-year degrees to 30% and increase the amount of research spending to \$1,000 per employee in the state. Both action alternatives include establishing a NPS research learning center that would promote education and advance science at Acadia National Park.

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## INITIAL ACTIONS

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### INTERIM USE POLICY

The visitor experience in the Schoodic District has not changed dramatically with the addition of the former navy lands, although more NPS personnel are now assigned to the district to handle increased operational demands. Considerable effort is going into the preparation of background studies of natural and cultural resources, and visitor use and transportation analyses to provide baseline information to assist future decision making. Newly acquired facilities are being used for offices, meetings, education programs, housing, and park operations. Until this plan is adopted, only short-term uses will be allowed on the former navy property in accordance with permitting procedures in effect at Acadia National Park. The NPS received the navy property at Schoodic on July 1, 2002. Acadia National Park is now operating the property as part of the larger Schoodic District, with responsibility for general maintenance, oversight of utility systems, waste disposal, security, fire protection, and public safety.

While most of the Schoodic District is open to public use, the former navy facilities are open only on a limited, case-by-case basis through the issuance of special use permits. Permits are issued in accordance with Acadia National Park regulations.

The U.S. Navy and the State of Maine had responsibility for environmental issues associated with transfer of the base to NPS. The U.S. Navy completed an environmental assessment in preparation of the transfer of land, which NPS verified. As a condition of the transfer, the U.S. Navy addressed cleanup of problem areas such as buildings containing asbestos or lead paint. The U.S. Navy has completed the remediation of a minor PCB contamination near building 45, which was the only remaining contamination identified in the environmental assessment for clean-up. The U.S. Navy has repaired the porch and façade of the Rockefeller Building, which were deteriorating due to water damage.

The public works building is now the Schoodic District office and base of operations. Several buildings are being used for research and edu-

cation programs with lodging for participants in nearby housing units. Former navy buildings not expected to be used immediately have been secured and utilities partially shut off. A minimum level of heat will be maintained to protect against deterioration of buildings expected to be reused.

The NPS will also continue to develop the park's Research Learning Center (i.e., the Schoodic Education and Research Center) by completing a business plan, preparing an economic feasibility study, and researching potential partners.

Other early actions expected to be taken include:

- **Signs:** Update obsolete directional and informational signs; install a new entrance sign for the base and additional signs where needed to minimize conflicts among pedestrians, cyclists, and motor vehicles.
- **Security:** Update communications system to allow for efficient monitoring with small number of personnel. Install gate at base entrance to control vehicular access.
- **Fire Detection and Suppression:** Evaluate sprinklers and fire alarms and modify as necessary to ensure that occupied and unoccupied buildings can be monitored efficiently.
- **Accessibility:** Analyze buildings to develop a list of needed modifications for universal accessibility.
- **Water and Sewage Systems:** Make necessary modifications to operate systems at reduced capacity.
- **Telephone:** Update obsolete equipment and modify system for efficient operation.
- **Transportation:** Test pilot programs to explore the potential for use of shuttles, buses, and water transportation.
- **Interim Storage:** Locations are being identified and prepared to store navy artifacts and documents related to Schoodic, which are being transferred to NPS. Some of this storage may be temporary until permanent use of space is allocated.

- **Design Studies:** Conduct preliminary design studies for education and research facilities and site circulation in accordance with design guidelines.

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## **PLANNING ISSUES**

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This plan focuses on a broad vision for Schoodic for the next 10–15 years. The planning team consulted with resource experts, visitors, park neighbors, local and state governments, and interested members of the public to identify their concerns and hopes for Schoodic. This consultation pointed up a number of critical issues to be addressed by the plan. Listed below, these issues are organized into four categories corresponding to National Park Service mission goals. This structure is used throughout the plan for ease of reference.

### **RESOURCE MANAGEMENT**

- How will NPS protect Schoodic's critical habitats?
- What are the proposed treatments of the historic Rockefeller Building, powerhouse, and contributing resources of the proposed Schoodic Peninsula Historic District?
- How will cultural landscapes in the Schoodic District be protected and potential conflicts with natural resource goals be resolved?
- How should management zoning in the 1992 plan be modified for Schoodic?
- How should lands adjacent to the park be protected to prevent negative impacts to park resources and values?

### **VISITOR USE AND INTERPRETATION**

- How is the quiet, natural visitor experience best protected?
- What level of visitor services will be provided and where?
- How can the number of motor vehicles in the park be minimized?

- How can circulation systems (i.e., paths, sidewalks, and roads) be improved to avoid conflicts?
- How should the navy base be reconfigured to feel more like a campus for the Schoodic Education and Research Center (SERC), NPS research learning center?

### **COOPERATIVE EFFORTS AND PARTNERSHIPS**

- How will the Schoodic Education and Research Center (SERC) be managed and what will be the NPS role?
- What are the facility needs for SERC programs versus those for general park purposes?
- What responsibilities will NPS undertake relative to fire suppression and emergency response with towns?

### **OPERATIONAL EFFICIENCY**

- What is the best management model to operate new programs at Schoodic and maintain the physical infrastructure?
- How will partners be selected to become part of SERC?
- What facilities, equipment, and staff will be needed for initial and long-term operations?
- How will decisions be made about buildings not needed for SERC or general park purposes?
- What standards and criteria will guide reuse of existing facilities, new facilities, and site changes?
- How will potential revenues be maximized so that they are available to offset operational costs?

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## MANAGEMENT GOALS

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At the start of planning for the Schoodic District, NPS identified several guiding principles. They incorporate Acadia National Park's mission and state that the Schoodic plan will be based on thorough study of the area's natural and cultural resources and the desire to maintain the current quiet, natural visitor experience enjoyed by users. The NPS is committed to an open public process for decision making and to understanding and respecting the concerns of surrounding communities. National Park Service laws and policies limit the range of permissible and appropriate uses at the Schoodic District.

Goals for Schoodic are based on the studies and consultations conducted by NPS as part of the planning process. The goals were identified to focus discussion and analysis of proposed alternative courses of action. They were discussed at public meetings and scoping sessions where preliminary findings were presented and appear to have a great deal of support.

An important source of information were the visitor studies conducted in 2000 and 2001 by a team under the direction of Dr. Robert Manning of the University of Vermont, a recognized expert on park carrying capacity studies. The studies (Manning et al. 2002), which sampled current users, give an excellent picture of who visits Schoodic and why. Users in 2000 came from nearby towns (19%), elsewhere in Maine (16%), other states (62%) and other countries (2%). In general, visitors were extremely pleased with their experience at Schoodic, remarking that it was far less crowded than they expected. The most desirable qualities of the Schoodic District were "pristine beauty/naturalness/scenery" (57%) and "not crowded/quiet" (33%). When asked what they would change about park management, 38% responded that they wouldn't change anything, 19% suggested more information and interpretation, and 13% requested additional facilities such as parking, restaurant, or gift shop. Overall, visitors were quite satisfied with their trip, with 92% rating their experience 8 or higher on a satisfaction scale where a score of 10 was "most satisfied."

When asked specifically about future uses for the navy base, 22% suggested an educational facility such as a museum or nature center, 11% thought the property should be returned to nature, 7% desired a visitor center, 5% a campground, and 4% overnight lodging. A large number of people simply said that it should be returned to Acadia National Park (26%) without specifying how it should be used.

When asked for their reaction to Acadia's *General Management Plan* objective to "retain current use levels and the existing naturalness and solitude of this part of the park," a resounding 95% of those surveyed expressed support for the goal on which the preferred alternative of this plan is based.

Other critical sources of ideas are consultations with residents and local governments of neighboring communities, meetings with tribal representatives, and members of the general public. The goals were developed after consultation with many people who attended public meetings, read park newsletters, and followed press accounts of the planning process. Public meetings were held in July 2001 and June 2002 to identify issues so that the planning team could develop this draft plan.

Acadia National Park is fortunate to be part of a strong network of organizations and individuals dedicated to protecting the natural and cultural resources so integral to the quality of life in Downeast Maine. The goals and proposals in this plan were prepared in consultation with our many partners, which include educational institutions like the University of Maine and College of the Atlantic, research organizations, and museums as well as advocacy groups like the Friends of Acadia, and the National Parks Conservation Association.

The following management goals set the overall direction for management of NPS lands in the Schoodic District.

## **RESOURCE MANAGEMENT**

- Schoodic District's natural, cultural, and scenic resources and associated values are protected, restored, and maintained in good condition and managed within their broader ecosystems and cultural context.

- Design guidelines are used to ensure that changes to the landscape or structures are appropriate to the zone in which they are located.

## **VISITOR USE AND INTERPRETATION**

- The quiet, natural visitor experience of the Schoodic District, offering opportunities for low-density recreation and solitude, is maintained.
- Visitors have a safe and enjoyable visit.
- Educational and interpretive programs are offered.
- Research opportunities consistent with the park mission are supported and encouraged.
- The former navy base is adapted as a campus for the Schoodic Education and Research Center (SERC), the Acadia National Park research learning center.
- Recreational and other uses do not impair natural or cultural resources or the visitor experience.

## **COOPERATIVE EFFORTS AND PARTNERSHIPS**

- Acadia National Park maintains and establishes partnerships to develop research and education programs and to foster stewardship of park resources and values both within and beyond park boundaries.
- Acadia National Park consults with neighboring communities on matters of mutual concern.
- Commercial services (e.g., for-profit retail, restaurant, and lodging) are not offered within the Schoodic District as these are more appropriately sited in nearby town centers.

## **OPERATIONAL EFFICIENCY**

- Existing buildings are retained if they can be reused in ways that are operationally effi-

cient, environmentally and economically sustainable, and supportive of the mission of Acadia National Park and the Schoodic Education and Research Center.

- The Schoodic District has adequate personnel and equipment to fulfill operational responsibilities.

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## **ENVIRONMENTAL ISSUES**

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Environmental issues are potential problems that might occur for various resources if any one of the alternatives is implemented. Each of the issues described below has a corresponding analysis in Part Four, the discussion of impacts. Environmental issues are developed with NPS staff and the public.

### **Issues Associated with Air Quality**

- Changes in the number of people or the distribution of visitors to the Schoodic Education and Research Center may result in differences in the concentrations of air pollutants associated with automobile or bus traffic. These include nitrous oxide, hydrocarbons, carbon monoxide, and carbon dioxide, some of which are precursors to ozone and/or contribute to changes in visibility and acid precipitation.
- Building removal and construction work on existing buildings may require grading, digging, or other actions that could cause temporary dust or larger particulates.
- The base operated several generators for which it had air quality permits. Continued operation of these generators would result in emissions associated with diesel engines, including those listed above.
- Radon, a human carcinogen, is naturally occurring in the granite bedrock underlying the peninsula. Indoor air may need to be tested and mitigation measures installed in buildings occupied by park staff, students, visitors, or lessees to prevent exposure to unsafe levels.
- Asbestos, also a known human carcinogen when inhaled, is present in the building

materials used to construct some of the buildings on the base.

#### **Issues Associated with Water Resources**

- Reuse of the navy base could result in changes in the demand for water or in the amount of wastewater treated and discharged by the park; continued effluent discharge from wastewater treatment plan at the former navy base into Arey Cove may create long-term water quality problems and impact the intertidal zone of the cove.
- Increased exploration of the base and peninsula by students and visitors could result in damage to the hydrologic characteristics, water quality, or riparian vegetation of ephemeral or perennial streams or watersheds.
- Activities associated with building removal could result in damage to streams or riparian areas.

#### **Issues Associated with Soils**

- Activities associated with the reuse of the navy base could result in the removal, compaction, or other changes to soils in previously undisturbed areas.
- Reuse of the navy base creates the potential for soil contamination through spills, leaking of gasoline or fuel oil, and other unintended releases.
- Development and other human activities are limited by thin soils in the region.

#### **Issues Associated with Vegetation**

- Activities associated with the removal and reuse of the buildings could adversely affect wetland values.
- Vegetation may be removed, thinned, or replaced with landscaping to create a more campus-like feel at the former navy base.
- Removal of some of the existing buildings in the study area, and in particular on the base, could create suitable conditions for regrowth of vegetation.
- Increased exploration by students or visitors of fragile or rare vegetative communities,

such as riparian areas, unusual woodlands, or habitat of rare plants, could result in impacts to soils, hydrology, or the plants themselves from trampling, collecting specimens, sliding soils, etc.

#### **Issues Associated with Coastal Resources**

- Increased exploration of the shoreline by visitors could result in human-related impacts to intertidal plants and animals.

#### **Issues Associated with Wildlife**

- Frequency and duration of disturbance by visitors could impact wildlife in habitat that is now experiencing little or no human presence.
- Visitors could trample vegetation or otherwise degrade habitat for wildlife.
- Research on wildlife may disturb or displace species and degrade habitat during exploration.
- Noise associated with construction may disturb and temporarily displace wildlife within hearing distance.
- Removal of some unused buildings at the base and restoration of habitat may result in the reoccupation of these areas by wildlife.

#### **Issues Associated with Cultural Resources**

- Grading, digging, or other construction and building removal activities may unearth or disturb archeological or historic resources.
- Any actions that involve resources that are eligible for the National Register of Historic Places are subject to review to ensure that potential adverse effects are avoided, minimized, or mitigated.
- A thorough archeological survey of the Schoodic District has not been completed; therefore, NPS lacks knowledge on possible locations and conditions of archeological resources, which is necessary to protect them.

#### **Issues Associated with the Visitor Experience**

- Reuse of the navy base may increase visitation to the Schoodic District and impact the quiet, natural visitor experience.

### **Issues Associated with Socioeconomic Environment**

- A large percentage of workers at the Naval Security Group Activity Winter Harbor were local civilians who may be looking for new employment opportunities in the area. Some of the employment lost due to the naval base closing may be replaced by employment opportunities related to the proposed reuse alternatives. New jobs would likely be in the service sector, and the education and research sectors, serving visitors at the former navy base, an undetermined number of which could be available to Hancock County residents and others in the region.
- The alternatives at Schoodic could generate spinoff impacts in the local community in addition to direct employment.
- There would be cumulative economic impacts to the area with the reuse of the navy housing in Winter Harbor and operations site in Corea. Some impacts might represent economic losses, while others might be long-term gains.

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## **MANDATORY IMPACT TOPICS**

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The National Environmental Policy Act requires that agencies consider several different possible issues to determine whether they require detailed analysis as impact topics. The following is a discussion of the mandatory impact topics NPS considered initially, but did not analyze further, either because they were irrelevant to the alternatives, would have negligible impacts, or required no more detailed work to understand impacts.

### **Conformity with Local Land Use Plans**

The existing and proposed land uses of the Schoodic District of Acadia National Park are in conformance with local land use plans. In addition, no conflict is expected with existing state or Tribal planning efforts. No conflict with these plans is expected as a result of the implementation of the draft plan or any of the analyzed alternatives.

### **Prime and Unique Agricultural Lands**

No unique agricultural soils are believed to exist within the Schoodic District of Acadia National Park. While some alternative agricultural crops (cranberries, orchard fruits) were cultivated in the 19th century, soils are believed to be relatively poor for traditional agriculture. In fact, agricultural use of the parklands on Schoodic has not existed for decades. No such soils are expected to be impacted by the implementation of the plan or any of the proposed alternatives.

### **Energy, Natural or Depletable Resource Requirements, and Conservation Potential**

None of analyzed alternatives would result in the extraction of resources from Schoodic parklands. Under all alternatives, conservation principles would be applied to ensure the park's natural resources are maintained. All alternatives include the use of fewer base structures, equating to reduced energy needs than when the Navy occupied the base. Alternatives B and C also include energy audits of base structures, as well as modifications to maximize energy efficiency according to Design Guidelines for Schoodic Education Research Center (see Appendix E). Only those buildings deemed operationally efficient and environmentally and economically sustainable will be reused. Where possible, NPS will convert electric heat to a more sustainable energy source. Fuel used in vehicles is also reduced under all alternatives when compared with that used during navy base operations. Under certain proposals, ground water recharge will be improved as a result of asphalt and structure removal at the base.

### **Environmental Justice**

All federal agencies are required to incorporate environmental justice into their missions by identifying/addressing disproportionately high and adverse human health or environmental effects of their programs and policies on minorities and low-income populations (Executive Order 12898). In compliance with the order, the plan and all analyzed proposals were assessed during the planning process and it was determined that none would result in significant direct or indirect adverse effects on any minority or low-income populations or communities.

### **Sacred Sites and Indian Trusts**

No known sacred sites (Executive Order 13007) or Indian trust resources (ECM95-2) are involved in the plan or proposals. The EIS also included for further analysis several of the impact topics identified by NPS and CEQ as mandatory to consider. These are described above under "Environmental Issues" and listed here:

- Historic and cultural resources and the design of the built environment
- Wetlands and floodplains, especially if development would occur in them
- Endangered or threatened plants and animals and their habitats
- Important scientific, archeological, and other cultural resources, including historic properties listed or eligible for the National Register of Historic Places
- Ecologically critical areas, Wild and Scenic Rivers, or other unique natural resources
- Public health and safety

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### **ALTERNATIVES ELIMINATED FROM FURTHER STUDY**

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While developing the alternatives, several possible approaches were considered but not finally analyzed, as they were considered impractical and not able to meet the goals identified for Schoodic. Other approaches were eliminated because they were inconsistent with the park's enabling legislation.

One possibility was for the Navy Morale, Welfare, and Recreation (MWR), which until 2002 operated facilities at the base, to convert the property into an independent MWR destination for active-duty and retired military personnel. This option was evaluated by MWR and rejected for reasons of financial feasibility. Costs for adding and maintaining amenities far exceeded projected revenues. It was recognized that the visitor season in this part of Maine is short, and that significant investment would be needed to convert facilities to civilian use. This further discouraged pursuit of options involving major enhancements associated more with a destination resort than with a national park.

Survey results and public comment further discouraged consideration of commercial lodging, dining, or recreational facilities. It was clearly stated in public meetings and in surveys, that people did not wish to see the property turned into a resort, or used for recreational activities that might generate excessive noise and traffic.

Furthermore, this alternative would be inconsistent with NPS Management Policies, which state that the concession operations must be necessary and appropriate.

Another alternative considered but not analyzed in great detail, was to restore the property back to its appearance in 1935 when the U.S. Navy first opened the radio station at Schoodic. This was eliminated from further analysis because it would have required the removal of many sound buildings with productive lives remaining. This alternative would have been nearly as expensive as the alternatives proposed, but would not have provided adequate space to support the research learning center.

Only a few people suggested, in surveys and at public meetings, considering "restoring the base back to nature" or to its condition before the navy base was built, but the public overwhelmingly opposed this alternative. While this was examined, it presented a host of problems. First, NPS could not have responsibly demolished the National Register-eligible Rockefeller Building complex. Nor could NPS recommend demolition of the buildings and infrastructure necessary to operate the research learning center, such as the maintenance facility, firehouse, water system, and roads. Finally, restoring the property back to its pre-navy base condition would have been contrary to congressional legislation and intent.



Figure 6



## EXISTING FEATURES

### Schoodic District

DRAFT Schoodic General Management Plan Amendment



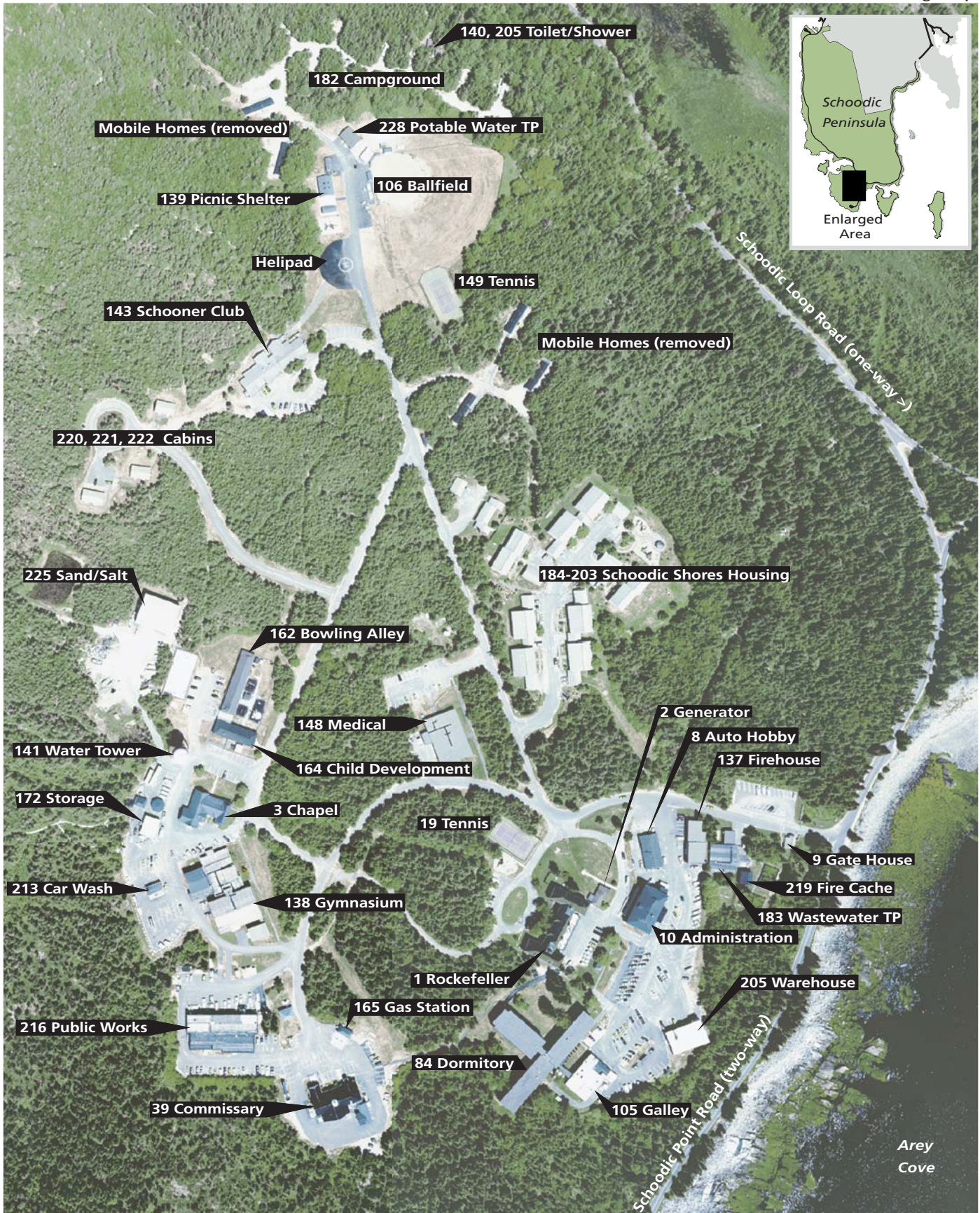
Acadia National Park  
U. S. Department of the Interior  
National Park Service

0 1000 ft 2000 ft





Figure 7



## EXISTING FEATURES

Former Navy Base

DRAFT Schoodic General Management Plan Amendment



Acadia National Park, Maine  
U. S. Department of the Interior  
National Park Service

0 150 ft 300 ft







Figure 8

MANAGEMENT ZONING	ZONE/SUBZONE	PARK AREAS
<div><div>NATURAL ZONE</div><div><div>NATURAL ENVIRONMENT SUBZONE</div><div>PROTECTED NATURAL AREA SUBZONE</div></div><div><div>CULTURAL ZONE</div><div><div>PRESERVATION SUBZONE</div><div>ADAPTIVE USE SUBZONE</div></div><div><div>DEVELOPED ZONE</div></div></div></div>	<div><div>NATURAL ZONE</div><div>Manage land and waters to conserve and protect natural resources and ecological processes and provide for their use and enjoyment by the public.</div><div><div>Natural Environment Subzone:</div><div>Conserve natural resources and provide environmentally compatible interpretive and recreational activities in ways that do not adversely affect those resources and processes.</div><div><div>Protected Natural Area Subzone:</div><div>Perpetuate geological or ecological values with minimal or no human intrusion. These lands and waters are set aside for strict protection because of unusual fragility or ecological significance.</div></div><div><div>CULTURAL ZONE</div><div>Manage areas to preserve, protect, and interpret cultural resources and their settings, and for their use and enjoyment by the public.</div><div><div>Preservation Subzone:</div><div>Preserve and interpret historic sites, structures, ethnographic resources, objects, and landscapes that are important because of their aesthetic value for their association with persons, events, or periods in human history and that merit full communication of these values to the public.</div><div><div>Preservation/Adaptive Use Subzone:</div><div>Use, with necessary modifications, of historically significant structures for leasing, public activities, or administrative activities and functions that perpetuate the characteristics that qualify these resources for listing on the National Register of Historic Places.</div></div><div><div>DEVELOPED ZONE</div><div>Manage lands to provide and maintain facilities for educational and interpretive services; for recreational opportunities; for other visitor services; for administration and maintenance of park resources; and for vehicular circulation in the park.</div></div></div></div></div></div>	<div><div>· All areas of the Schoodic District not classified in other zones or subzones</div><div><div>· Wetlands</div><div>· Islands</div><div>· Significant intertidal zones and associated upland</div><div>· Maine Natural Areas Program "Rare or Exemplary Natural Communities, Essential/Significant Wildlife Habitat"</div></div><div><div>· Roads, trails, cultural landscapes, and developed areas contributing to the Schoodic Peninsula Historic District</div><div><div>· Rockefeller Building, powerhouse, and their surrounding landscape</div></div><div><div>· Former navy buildings, facilities, and infrastructure</div><div>· Frazer Point picnic area and dock</div></div></div></div>

## PART TWO: THE ALTERNATIVES AND THEIR COMMON ELEMENTS

This chapter describes proposed policies and actions for the Schoodic District that are analyzed in subsequent parts. Presented first are proposed policies that would apply regardless of the management alternative selected. Management zoning is a technique used in general management plans to delineate how various portions of a park will be managed to meet desired future resource conditions. In this plan, which amends Acadia's 1992 *General Management Plan*, management zoning recommendations do not differ among the alternatives.

Management prescriptions that are the same for all alternatives are presented next, under the heading "Management Prescriptions Common to All Alternatives," followed by sections explaining what is unique to each of three alternatives—Alternative A: No Action, Alternative B: National Park Service Management, and Alternative C: Collaborative Management.

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### MANAGEMENT ZONING

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Management zoning provides guidance to park managers on how each part of the park should be managed. It is one of the most important parts of this plan as it governs how and where the identified management goals will be achieved. It is used in combination with other policies governing proposed changes to parklands.

Under Acadia's *General Management Plan*, the Schoodic District is managed primarily as a Natural Zone to conserve and protect natural resources and ecological processes while providing for their use and enjoyment by the public. Since that plan was adopted, we have learned more about the natural and cultural resources of Schoodic through research and are proposing changes to the zoning scheme to reflect that knowledge. The five basic management zoning categories from Acadia's *General Management Plan* remain unchanged, but those zones are applied differently in this plan. Management zoning is the same for all alternatives (See Schoodic Management Zoning: Common to All Alternatives, Figure 8).

Placement in a management zone, e.g. natural zone, is intended to emphasize the importance of natural resource values in that zone. When a cultural resource such as an historic building is located in a natural zone, both cultural and natural resource management policies are followed.

The Protected Natural Area Subzone of the Natural Zone would be expanded under all alternatives to protect resources of unusual fragility or ecological significance. This subzone would include wetlands, shorebird habitat, significant intertidal zones, coastal islands (i.e., Schoodic, Little Moose, Pond, and Rolling), and Maine Natural Area Program "Rare or Exemplary Natural Communities" (i.e., Jack Pine Woodland on the east side of Schoodic Head and Maritime Shrubland on the southern portion of Little Moose Island). This zone perpetuates geological or ecological values with minimal or no human intrusion and would allow scientists to conduct further research.

In documentation prepared to nominate potentially eligible resources of the Schoodic District to the National Register as a historic district, the circulation system of roads and trails is highlighted. The system is considered eligible for listing in the National Register, and zoning has been amended to reflect this. Designed and built in the early years of the park, the road and trail system (outside of the former navy base) would be rezoned as cultural resources to ensure that their character-defining features are protected during normal maintenance. The roads and hiking trails would be placed in the Preservation Subzone of the Cultural Zone which would include the parking areas at Schoodic Point and Blueberry Hill, and the gravel pull-offs along the Schoodic Loop Road, all important features of the road system.

The Rockefeller Building and powerhouse, along with the surrounding landscape, would be placed in the Adaptive Use Subzone of the Cultural Zone. While the buildings retain their historical integrity, the surrounding landscape has been substantially altered. The Adaptive Use Subzone reflects this reality and directs managers to "perpetuate the characteristics that

qualify these resources for listing in the National Register of Historic Places" while allowing necessary modifications for public or administrative use. This will allow the Rockefeller complex to be reused as a focal point of the educational and research campus. Its zoning differentiates it from the rest of the surrounding Developed Zone.

The Developed Zone is the location for facilities and services to support the park. Most of the former navy property falls into this zone, as does the Frazer Point picnic area and dock.

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### **MANAGEMENT PRESCRIPTIONS COMMON TO ALL ALTERNATIVES**

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"Management prescriptions," in National Park Service (NPS) terminology, are statements of desired future conditions that describe how the park's goals will be achieved. These statements describe the resource conditions and visitor experiences that are to be achieved and maintained over time, and the kinds and levels of management activities, visitor use, and development that are appropriate for the park. Some of the prescriptions help to achieve multiple goals. They are grouped in broad categories for ease of reference.

Following each management prescription (in boldface), are a series of actions that might be taken over the next 15 years to meet the goals stated in the plan. These actions explain how progress would be made, and are intended to be representative of the methods that would be used by NPS and its partners.

Regardless of which alternative is ultimately chosen and implemented, many prescriptions for management will be applicable to the Schoodic District as a whole, and, since this plan amends Acadia's *General Management Plan*, its prescriptions also remain in effect except where amended. Those with particular applicability to Schoodic will be restated in the amendment.

In general, NPS will continue to provide basic resource management, maintenance, administrative and visitor services at Schoodic, expanding operations as funding permits. The Schoodic Loop Road will be open year-round.

Under all alternatives, visitors would continue to enjoy an uncrowded park experience providing opportunities for solitude in a relatively natural environment. Ongoing research would continue to inform management and opportunities would continue to expand as the Schoodic Education and Research Center evolves. There would be increased interpretive and educational opportunities. The park's interpretive themes (Appendix A) would be used to guide this expansion, which could include the history of the park and of the U.S. Navy's presence at Schoodic.

Visitor information materials will be updated to reflect changes. Current informal or "social" trails, especially on Little Moose Island, will be evaluated for resource damage and revegetation plans developed where needed.

The Schoodic District was evaluated as part of parkwide alternative transportation planning, and work would continue to explore enhanced service as part of the Island Explorer inter-modal system that will include parking, shuttle buses, and ferry connections. Expansion of this system at Schoodic is dependent upon future use levels.

The system of roads, paths, parking lots, and open space on the former navy base was examined and draft design recommendations made to reduce pedestrian-vehicular conflicts and to create a setting more appropriate for an educational and research campus within a national park (see Appendix E for proposed design guidelines and see Figure 13 for a conceptual site plan showing how they might be applied). Park operations are based at the public works building and include offices, storage, garages, and a meeting room. Additional operational space needs would depend upon the alternative selected for implementation.

## **RESOURCE MANAGEMENT**

**All resource management decisions are based on full consideration of the best available natural and cultural resource information, and are made by professional staff supplied with requisite technical and research support.**

- Natural and cultural resources are inventoried and monitored.
- The U.S. Navy collection (documents, photographs, objects, and electronic and magnetic media) at the former navy base is preserved for current and future use by researchers and the public.
- Using the NPS Visitor Experience and Resource Protection methodology, baseline data is obtained to identify indicators, develop standards, and determine acceptable levels of impacts from visitation that can be monitored over time.
- The Rockefeller Building, powerhouse, and proposed Schoodic Peninsula Historic District are listed in the National Register of Historic Places, and historic structure and cultural landscape reports are completed to determine treatments for historic resources.
- Determine the extent to which tidal flows may be restricted on the inland side of the Schoodic Loop Road, particularly at the Big Moose Island causeways, and quantify any resulting ecological changes. If warranted, restore natural hydrologic regimes to mitigate impacts based on the results of the investigation.
- Evaluate the potential for restoring the ranger station to a condition that would qualify it as a contributing resource to the proposed Schoodic Peninsula Historic District (NPS 2001b). Complete necessary treatment according to *The Secretary of the Interior's Standards for the Treatment of Historic Properties*.
- Archeological and ethnographic resources are inventoried and documentation is available before ground-disturbing activities are proposed.

**Management zoning guides use of the Schoodic District, and is used along with design guidelines and carrying capacity guidelines to shape management actions.**

- Critical habitats are identified and located in proper management zones, and visitor use is managed to protect resources (e.g., rare plants, Jack Pine Woodland, eagle and seabird nesting sites, wildlife corridors, islands, intertidal zone).
- Designate Research Natural Areas consistent with NPS guidelines to preserve largely undisturbed ecological community types for non-manipulative research and educational use. Research Natural Areas will serve as benchmarks for assessing long-term ecological changes in other locations. Research Natural Areas will be managed to prevent any activity that could alter existing natural conditions and processes. Management actions may include limiting access to all uses other than non-manipulative research. Areas within the Protected Natural Area Subzone (see Figure 8), particularly the Maritime Shrubland Community on Little Moose Island and the intertidal zone, will be evaluated for Research Natural Area designation.
- Carrying capacity indicators and standards are established for zones and monitored over time to protect resources and the visitor experience.
- Adopt design guidelines to ensure design consistency and quality so that SERC will have a unique identity compatible with Acadia National Park.

**Schoodic District's natural lightscape is preserved.**

- Preserve, to the greatest extent possible, the night sky of the Schoodic District by restricting the use of artificial lighting to those areas where security, human safety, and other site management requirements must be met.
- Utilize minimal impact lighting techniques, and shield the use of artificial lighting where necessary to prevent the disruption of the night sky. Remove or retrofit inappropriate outdoor lighting to preserve the night sky.

**Schoodic District's natural soundscape is preserved.**

- Maintain Schoodic's quiet character and natural soundscape with minimal disruption from human activities.
- Preserve, to the greatest extent possible, the natural soundscapes of the Schoodic District. The natural soundscape is the aggregate of all the natural sounds that occur in parks in the absence of human-caused sound.
- Prevent or minimize all noise that, through frequency, magnitude, or duration, adversely affects the natural soundscape or other park resources or values, or that exceeds levels that have been identified as being acceptable to, or appropriate for, visitor uses at the Schoodic District.

**Vegetation is restored to a natural condition in areas that have been or may be altered by human activity.**

- Revegetate areas that have been or may be disturbed by human activity, including areas where buildings and other facilities may be removed and not replaced by other development. Use seeds, cuttings, or transplants representing plant species and gene pools native to the Schoodic District, as feasible.
- Where necessary to preserve and protect the desired condition of specific cultural resources and landscapes, plants generally will be managed to reflect the character of the landscape that prevailed during the historic period. Efforts should be made to extend the lives of specimen trees dating from the historic period being commemorated.
- Selective vegetation will be periodically removed from around buildings to maintain defensible space that will protect buildings in the event of a wildfire.
- Remove perimeter chainlink fence and revegetate disturbed area.

**Land use on the Schoodic Peninsula and surrounding islands is compatible with Acadia National Park values and purposes.**

- Monitor land use proposals and changes to surrounding lands, and evaluate their potential impacts.
- Participate in the land use planning and regulatory processes of neighboring jurisdictions to encourage compatible adjacent land uses and avoid or mitigate adverse impacts to park resources and values.
- Work cooperatively with surrounding landowners, local and state governments, land trusts, and others so that the use of non-park lands on the Schoodic Peninsula is compatible with park resources and values. The NPS will consider all available land protection techniques and options.
- Cooperate with landowners and land trusts to protect lands of value to the park, pursuant to the 1986 boundary legislation (P.L. 99-420) and the park's Land Protection Plan.

**VISITOR USE AND INTERPRETATION**

**Visitors understand the significance of the resources in the Schoodic District.**

- Provide visitor information and interpretive messages through various media, including Internet websites.

**Public facilities are safe and universally accessible.**

- Building and facilities open to the public will be evaluated and modified to meet current life safety standards.
- All buildings and facilities will be accessible to, and usable by, persons with disabilities to the greatest extent reasonable, in compliance with all applicable laws, regulations, and standards.
- Buildings and facilities will be modified to ensure that public programs can be provided in accessible locations.

**The impacts of private motor vehicles on park resources and the visitor experience are monitored and minimized.**

- The Schoodic Loop Road will be maintained as a one-way scenic drive beginning in Winter Harbor off State Route 186, with a two-way spur to Schoodic Point before rejoining State Route 186 in Gouldsboro.
- Develop alternative transportation system approaches to minimize use of private motor vehicles in the park. Consider the use of shuttle buses and improvements to expand bicycling (See Appendix C for more information on alternative transportation proposals for Schoodic).
- Limit parking to the capacity of existing lots. The current capacity at the former navy base is 350 cars and this would not be exceeded, although lots might be relocated within the site. Parking will be permitted only in designated spaces in established lots, and vehicle size will be restricted in lots where turning space is limited. The cooperation of the state and neighboring towns will be sought in developing parking facilities outside of the park for use in connection with an alternative transportation system.
- Prevent parking along roadsides where resource damage may occur or limited parking is desirable, including roads adjacent to Little Moose Island/East Pond and Pond Island/West Pond.

**Visitor use is compatible with the Schoodic District's resources and values.**

- Provide opportunities for forms of enjoyment that are uniquely suited and appropriate to the resources of the Schoodic District, and defer to local and state governments, private industry, and non-governmental organizations to meet the public's broader spectrum of recreational needs and demands.

- Visitor use, including recreational activities, will be appropriate to the purpose for which the park was established. Activities should foster an understanding of, and appreciation for, park resources and values, or promote enjoyment through a direct association and interaction with park resources without causing unacceptable impacts to park resources or values.
- The dock at Frazer Point will be available for recreational purposes and NPS administrative use only. No ferry or commercial docking will be allowed.

**Manage trails according to guidance provided in the park's Hiking Trails Management Plan (2002).**

- Retain the configuration of trails in the Schoodic District and preserve their character-defining features by applying the appropriate historic preservation treatment.
- Revegetate most of the social trails on Little Moose Island. Rehabilitate selected social trails to establish a 0.75-mile loop trail. The trail would be sensitive to the vegetation and preserve the visitor experience.
- Management actions to preserve opportunities for solitude and protect vegetation on Little Moose Island will include, but are not limited to, temporary closures, group size limits, and overall visitation limits, as well as increased education efforts. To the degree possible, access to Little Moose Island will be confined to a single point of crossing to reduce impacts on resources.
- Minimize potential resource impacts to the shoreline accessible from former navy base trails, including but not limited to, temporary closures, group size limits, and overall visitation limits. Visitor education efforts will include providing "Leave No Trace" information at trailheads located on the former navy base.
- Visitor education efforts will include providing "Leave No Trace" information at trailheads located on the former navy base.



- The Sundew Trail will be improved according to NPS trail construction standards and designated for administrative use only. The Sundew Trail will not be promoted or appear on NPS maps.
- Designate the Alder Trail for bicycle use if determined to be feasible and appropriate.

#### **Implement a comprehensive sign program.**

- In cooperation with neighboring towns and the Maine Department of Transportation, implement a comprehensive sign plan for the Schoodic District consistent with NPS design criteria and standards under the UniGuide Program (2002). The plan will minimize the number of signs inside and outside the park while increasing their effectiveness. Signs within the Schoodic Education and Research Center (SERC) will be distinctively designed to reflect the character and functions of the site, while maintaining compatibility with NPS standards (see design guidelines in Appendix E).
- Signs will be held to the minimum number, size, and wording required to serve their intended functions, so as to minimally intrude upon the natural and historic settings. They will be placed where they do not interfere with park visitors' enjoyment and appreciation of park resources.
- Traffic signs along the Schoodic Loop Road and within the SERC campus will be reduced to the minimum necessary to meet information, warning, and regulatory needs, and to avoid confusion and visual intrusion.

#### **COOPERATIVE EFFORTS AND PARTNERSHIPS**

##### **Acadia National Park and neighboring towns assist each other in emergencies.**

- Mutual aid agreements for medical emergencies and fire protection are maintained with neighboring towns.

#### **OPERATIONAL EFFICIENCY**

##### **All park functions, infrastructure, and programs are programmatically and physically sustainable, with principles of conservation applied.**

- Facilities are audited for energy efficiency and modified to maximize energy efficiency.
- Proposed program costs are evaluated and business plans prepared to show how funding will be obtained.

##### **Visitors to the Schoodic District possess the appropriate park entrance pass and understand how NPS uses park entrance fees.**

- Inform visitors of park entrance fees and how the NPS uses fees to protect resources and improve visitor facilities.
- Issue park entrance passes at the Schoodic District and publicize their availability.
- Implement, as may be needed, specific park entrance fee policies and procedures for the Schoodic Education and Research Center.

##### **Operational budget increases provide for increased responsibilities.**

- Budget increases will be sought to meet the park's responsibilities for administration, resource management, interpretation, maintenance, and protection.

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## ALTERNATIVE A: NO ACTION

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### OVERVIEW

The National Environmental Policy Act requires that NPS identify and evaluate alternative approaches to meeting its goals. For comparison, the No Action Alternative describes existing conditions at Schoodic and represents what would happen if current operations were continued without major change. Please refer to the map and summary at Figure 9 for an illustration of Alternative A and remember that it also includes actions common to all alternatives such as the application of Management Zoning as illustrated in Figure 8 (further information and cost estimates are found in the Appendices). In general, the Schoodic District would be managed as it has been with some changes related to the departure of the U.S. Navy and as a result of newly obtained resource information.

Although capacity would exist for as many as 200 people for a special event on the campus, this would be extremely unlikely under this alternative due to staffing constraints. A typical day during the peak season would see only park staff on site, with an occasional program for 20 participants. Accommodations would be available for 20 program participants in dormitories, and a small number of apartments would be used for park employee housing. Overnight use would be greatly reduced from the 350–400 people who lived on the base when the U.S. Navy was present.

There would be some 1,526 people per day in the entire Schoodic District during the peak months of July, August, and September. Throughout the year, visitation would average around 738 per day, with an annual projected total of 258,500. It is expected that overall, the Schoodic District of the park would experience a moderate increase in visitor day use (1% per year) in addition to some 1,800 new program participants.

Traffic volumes on park roads have dropped significantly since the departure of the U.S. Navy. In 2000, 60% of the vehicles on Schoodic park roads were non-recreational. While there will always be a certain amount of traffic associ-

ated with deliveries and services to the campus, it is expected that the 350 typical non-recreational vehicles per day would be cut in half in the future. Average daily vehicles in 2000 ranged from 802 during the peak summer months to 504 during the rest of the year for an average of 579 vehicles per day and a total of 208,330 vehicles per year. Projected vehicles for this alternative are 154,592 total with average daily totals of approximately 454.

The number of cars seen at one time is an important indicator of visitor satisfaction, according to the *Schoodic Peninsula Visitor Study* (Manning 2002). Interviewed in 2000, visitors were pleasantly surprised to see an average of 2.8 cars at one time on Schoodic Loop Road, although they expected to see an average of 4.1. They reported that they would tolerate a maximum of 12.7 cars at one time, but would prefer to have the road managed to see no more than 8.5 at once. It would appear that the current levels allow ample room for expansion of programs and low-impact recreational uses.

The management prescriptions described in the previous section "common to all alternatives" apply to this alternative, in addition to the management prescriptions and actions listed below.

### RESOURCE MANAGEMENT

#### **The historic Rockefeller Building and powerhouse are maintained for future preservation and adaptive reuse.**

- The treatment approach for the Rockefeller Building and powerhouse will be "preservation," as provided under *The Secretary of the Interior's Standards for the Treatment of Historic Properties* (1995). This treatment focuses on the protection and stabilization of existing historic materials. Because this alternative would not include removal of pavement nor unneeded buildings, landscape restoration would not occur.

## **VISITOR USE AND INTERPRETATION**

Under this status quo alternative, visitors would continue to enjoy the quiet, uncrowded experience they value today.

- Information and interpretation would be limited to the current system of wayside, road, and trail signs, park fact sheets, and occasional contact with interpretive, protection, and maintenance staff and volunteers. The Frazer Point picnic area and restrooms at Frazer and Schoodic Point would be maintained.
- There would be few programs for the general public, although there might be some limited use of base facilities for educational activities, such as the park's education camp.
- Former navy facilities would be closed to the public for safety reasons and buildings would be secured and closed down. National park personnel would have a somewhat higher presence than they have currently, primarily to respond to emergencies. Contractors or park staff would provide snow plowing and would maintain roads and utility systems.

**Circulation on the base would remain dominated by vehicles, with large paved areas and minimal provisions for pedestrians.**

- Military structures would predominate, making it difficult to offer a park experience to educational program participants. Access to the shoreline at Big Moose Island would remain limited, as approximately half of it can be reached only from trails originating within the base.

## **COOPERATIVE EFFORTS AND PARTNERSHIPS**

**Planning for the Schoodic Education and Research Center would continue with efforts made to identify research and education partners.**

- Although design studies would continue for buildings targeted for early program and partner use such as the former Commissary, Medical Building, and Rockefeller Building, they would not be available for use.

## **OPERATIONAL EFFICIENCY**

Management would concentrate on maintaining facilities at the lowest possible cost to protect them until an overall direction has been determined and funding is available to reuse or remove buildings.

- Drain pipes and set heating systems at lowest possible temperatures until new uses are known. Buildings and systems would be secured from the weather. Fire detection systems would be deactivated and fire sprinkler systems would be drained.

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## **ALTERNATIVE B: NATIONAL PARK SERVICE MANAGEMENT**

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### **OVERVIEW**

This alternative represents the approach that would be taken if NPS were to continue to operate its current programs, expanding them somewhat to use the facilities of the navy base. The Schoodic Education and Research Center (SERC) would be the primary use at the former navy base property, but its scope and scale would be more limited. It would focus on research and programs directly related to Acadia National Park and would be managed almost exclusively by NPS. Please refer to the map and summary at Figure 10 for an illustration of Alternative B and remember that it also includes actions common to all alternatives such as the application of Management Zoning as illustrated in Figure 8. (Further information and cost estimates are found in the Appendices).

The approach would be similar to but far more modest than what is described in Alternative C. Priority would be given to existing research and education programs and to preserving historic structures. Programs would be unlikely to fill all buildings available for reuse. Buildings not needed by the park would be secured and mothballed for future use or removed as funding permitted. Over time, almost half the base property could be restored to natural conditions.

The NPS would handle all major management responsibilities, including maintenance, allocating of space, planning, design and construction of any changes to buildings, developing and scheduling programs, and operating services and facilities. While other organizations would participate in research and education at Schoodic, they would not have management responsibilities but would have more limited roles. If partner organizations were to locate at SERC, they would do so through cooperative agreements or leases with NPS.

Although capacity would exist for as many as 400 people for a special event on the campus, a typical day during the peak season would see 150 program participant users on site per day. Accommodations would be available for 90 program participants in dormitories and apartments. Some participants might use the 12 campsites, while others would come from nearby towns and not require onsite lodging. Overnight use would be much reduced from the 350–400 people who lived on the base when the U.S. Navy was present.

Combined with a projected visitor day use of 1,526 people, there would be some 1,656 people per day in the entire Schoodic District during the peak months of July, August, and September. Throughout the year, visitation would average around 868 per day, with an annual projected total of 272,000. It is expected that overall, the Schoodic District of the park would experience a moderate increase in visitor day use (1% per year) in addition to some 13,500 new program participants.

Traffic volumes on park roads have dropped significantly since the departure of the U.S. Navy. In 2000, 60% of the vehicles on Schoodic park roads were non-recreational and most of these were associated with navy use. While there will always be a certain amount of traffic associated with deliveries and services to the campus, it is expected that the 350 typical non-recreational vehicles per day will be cut in half in the future. Average daily vehicles in 2000 ranged from 802 during the peak summer months to 504 during the rest of the year for an average of 579 vehicles per day and a total of 208,330 vehicles per year. Projected vehicles for this alternative are 160,442 total with average daily totals of approximately 519.

The number of cars seen at one time is an important indicator of visitor satisfaction, according to the *Schoodic Peninsula Visitor Study* (Manning 2002). Interviewed in 2000, visitors were pleasantly surprised to see an average of 2.8 cars at one time on the park road, although they expected to see an average of 4.1. They reported that they would tolerate a maximum of 12.7 cars at one time, but would prefer to have the road managed to see no more than 8.5 at once. It would appear that the current levels allow ample room for expansion of programs and low-impact recreational uses.

Management under this alternative would be almost exclusively by NPS, which would rely on available funds to support a full range of responsibilities.

The management prescriptions described in the previous section "common to all alternatives" apply to this alternative, in addition to the management prescriptions and actions listed below.

## **RESOURCE MANAGEMENT**

### **Disturbed lands are restored after removal of pavement or buildings.**

- It is estimated that approximately 40 acres of disturbed landscape could be restored to appropriate native plant communities upon the removal of structures not needed for park use. Many of the buildings on the base would be removed.

### **The historic Rockefeller Building complex is preserved and the interior rehabilitated for program use.**

- The Rockefeller Building which now contains apartments and offices would be adapted to include more offices, a conference room, a small visitor contact and exhibit space, and restrooms. While the exterior of the building would be preserved, the interior would be modified to accommodate programs. Minimal reconfiguring of the interior spaces would be required, as new uses would fit the residential scale of the building without necessitating any major structural changes.

**The surrounding landscape is designed and reconfigured to provide a suitable setting for the Rockefeller Building as a primary focal point of the campus.**

- Removing asphalt and redesigning the landscape around this building would help provide a setting suitable for a campus within a national park. The landscape around the building was designed in the 1930s in consultation with NPS landscape architects and included native plantings. Grading and planting plans from 1934 are available and should be referenced while creating a contemporary design for the space to address functional needs such as reducing pedestrian and vehicular circulation conflicts. See Figure 12 for illustrations of the future SERC campus.

## **VISITOR USE AND INTERPRETATION**

**Circulation system has minimal conflicts and allows visitors access to the former navy base property.**

- Existing parking and circulation are evaluated and redesigned to make the base more hospitable to pedestrians in accordance with design guidelines (see Appendix E for suggested design guidelines). Parking is consolidated and screened so that pavement may be removed and the landscape restored.

**The navy base feels like a campus within a national park setting.**

- Removal of pavement and redesigning the landscape will help change the military setting to one more suitable for education and interpretation within a national park. In addition, design standards will be adopted for compatible paving, sidewalks, lighting, benches, signs, and related elements (see Appendix E). Incompatible elements that diminish enjoyment of the night sky and natural soundscape would be mitigated or removed.

**New uses support and enhance the quiet, natural visitor experience and the mission of Acadia National Park.**

- Criteria would be set and proposed new programs evaluated to ensure consistency with park mission and acceptable levels of use in the various management zones. Activity levels similar to those present in 2000 would be acceptable, as they were compatible with nearby park use as evidenced by visitor surveys and resource studies. New uses might include a wide variety of activities including research, education for students of all ages, artist-in-residence, conferences, retreats, and special events.

**Acadia National Park provides facilities and support for a modest amount of day use and residential programs.**

- The Rockefeller Building would provide offices for partner program organizations, which would be supplemented by program and meeting space in the chapel, medical clinic, Schooner Club, and commissary. A small exhibit area, visitor contact station, and restrooms would be located in the Rockefeller Building and could include a book sales operation. The galley would provide food service to occupants of the barracks and other housing units.
- Some buildings on the base would be used for park programs or for related operation and maintenance.
- Accommodations would be available for 80 program participants and 10 staff members in dormitories, apartments, and campsites. Dormitories would house younger students while adult students and staff would use apartments.
- Camping facilities would be available for research learning center-related programs and activities and to support park operations. A public campground would not be operated at Schoodic.

**Visual intrusions on the Schoodic District's highly valued scenery, including views to and from the peninsula, are minimized.**

- New development will not compete with or dominate park features, or interfere with visitor enjoyment of the scenery.
- The installation of towers and other structures taller than tree height will be limited to those that are directly related to the mission and programs of NPS or SERC. The design and siting of towers and other structures will be integrated into the park landscape to minimize visual impacts. The total number of towers and similar structures will be minimized by sharing facilities to the extent possible.
- Towers and similar structures will not be located outside of the Developed Zone of the former navy base.
- Evaluate the option of removing the water tower and replacing it with a ground-level storage tank. Replace the water tower if it is economically, operationally, and environmentally feasible.

### **COOPERATIVE EFFORTS AND PARTNERSHIPS**

**Park manages programs and facilities.**

- Park staff would manage programs and facilities under this alternative, with cooperation from organizations, agencies, and educational institutions.

### **OPERATIONAL EFFICIENCY**

**Buildings are evaluated for their reuse potential for Acadia National Park and Schoodic Education and Research Center needs.**

- All buildings are assessed for their reuse potential. Operating and maintenance costs are reviewed.

**Unneeded buildings are removed to reduce operational costs, improve site conditions, and allow for maximum native plant restoration.**

- Buildings would be used for park operations or SERC purposes as shown in the accompanying site plan for Alternative B (Figure 10).
- Buildings and structures ineligible for the National Register of Historic Places would be evaluated for removal when NPS determines that there is no viable and cost-effective use related to the mission and purpose of Acadia National Park or SERC. The NPS would remove buildings when the necessary approvals and compliance documents were completed, and funding was available.
- Buildings and structures designated for removal would be secured in the interim. Small storage, maintenance, and obsolete utility buildings would be removed to improve the appearance and campus-like character of the former navy base property, and to allow for a more efficient use of space. In addition to the minor buildings identified for immediate removal under this alternative, the park would remove structures not needed by SERC such as the hockey rink and mobile home pads, to allow for native plant restoration or the relocation of existing parking spaces.

**New programs demonstrate financial viability.**

- All proposed SERC programs would be expected to show how operating costs would be generated from user fees, donations, and appropriated and other funds. A full range of revenue-generating options would be explored to offset program costs. Options to be examined might include sales items, program fees, and contributions by sponsoring organizations. Non-NPS programs will be expected to pay rent for office and program spaces and contribute to the use of shared SERC facilities, such as conference rooms.

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## **ALTERNATIVE C: COLLABORATIVE MANAGEMENT (PREFERRED)**

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### **OVERVIEW**

Under this alternative, the Schoodic Education and Research Center (SERC) would facilitate education and research to promote the understanding, protection, and conservation of natural and cultural resources of the National Park System and related research at the regional, national, and international levels. Please refer to the map and summary at Figure 11 for an illustration of Alternative C and remember that it also includes actions common to all alternatives such as the application of Management Zoning as illustrated in Figure 8 (further information and cost estimates are found in the Appendices).

A separate nonprofit organization would develop and manage the research learning center in cooperation with NPS. The nonprofit would serve as an umbrella organization to coordinate the use of the facilities by partners participating in educational and research activities. It would have sufficient autonomy to be creative and flexible in developing and managing SERC while fully protecting the interests of NPS.

Schoodic Education and Research Center would play a major role in coordinating the activities described in this alternative. Preliminary queries suggest that there are many groups interested in basing research and education activities at Schoodic. A mix of activities could enliven the former navy base and expand educational opportunities. Programs could be offered for people of all ages in the fields of natural and cultural history, conservation, science, music, and art. Facilities would exist for small conferences, retreats, and special events. By pooling the financial capabilities of partners, existing buildings would be reused more quickly than in the other alternatives.

Once criteria and standards are set, proposals would be requested from partners seeking to join SERC as founding partners. The nonprofit would coordinate programs, select new part-

ners, and manage shared services such as food, lodging, and meeting space for program participants.

The NPS role would be to plan and manage the Schoodic District to ensure that resources are protected and to offer educational and interpretive programs along with those sponsored by other SERC partners. The actions described earlier in the section "Management Prescriptions Common to All Alternatives" would guide management, along with those listed below. The park would continue to sponsor research and could develop laboratory, library, computing, and other facilities in collaboration with partners as part of SERC (see Appendix G).

A typical day during the peak season would see no more than 350 program participant users on site per day. Accommodations would be available for 190 program participants and staff in dormitories and apartments. Some participants might use the 12 campsites, while others would come from nearby towns and not require onsite lodging. Overnight use would be much reduced from the 350–400 people who lived on the base when the U.S. Navy was present.

Combined with a projected visitor day use of 1,526 people, there would be some 1,858 people per day in the entire Schoodic District during the peak months of July, August, and September. Throughout the year, visitation would average around 1,068 per day, with an annual projected total of 290,000. It is expected that overall, the Schoodic District of the park would experience a moderate increase in visitor day use (1% per year) in addition to some 31,500 new program participants.

Traffic volumes on park roads have dropped significantly since the departure of the U.S. Navy. In 2000, 60% of the vehicles on Schoodic park roads were non-recreational. While there will always be a certain amount of traffic associated with deliveries and services to the campus, it is expected that the 350 typical non-recreational vehicles per day will be cut in half in the future. Average daily vehicles in 2000 ranged from 802 during the peak summer months to 504 during the rest of the year for an average of 579 vehicles per day and a total of 208,330

vehicles per year. Projected vehicles for this alternative are 169,442 total with average daily totals of approximately 619.

This concept is the one that best meets the goals set out earlier in this plan. It is termed "preferred" because it is the alternative toward which NPS is leaning, pending public and agency review of this draft plan and the accompanying environmental impact statement.

## **RESOURCE MANAGEMENT**

**The exterior of the historic Rockefeller Building complex is preserved and the interior rehabilitated for program use.**

- The Rockefeller Building which now contains apartments and offices would be adapted to include more offices, a conference room, a small visitor contact and exhibit space, and restrooms. While the exterior of the building would be preserved, the interior would be modified to accommodate programs.
- Minimal reconfiguring of the interior spaces would be required, as new uses would fit the residential scale of the building without necessitating any major structural changes.

**The surrounding landscape is designed and reconfigured to provide a suitable setting for the Rockefeller Building as a primary focal point of the campus.**

- Removing asphalt and redesigning the landscape around this building would help provide a setting suitable for a campus within a national park. The landscape around the building was designed in the 1930s in consultation with NPS landscape architects and included native plantings. Grading and planting plans from 1934 are available and should be referenced while creating a contemporary design for the space to address functional needs such as reducing pedestrian and vehicular circulation conflicts.

**Disturbed lands are revegetated after removal of roads or buildings.**

- It is estimated that approximately 16 acres of disturbed landscape could be revegetated with appropriate native plant communities upon the removal of structures not needed for park use. This could take time to achieve, as the decision to remove a building, which may still have a useful life, is not one to be made hastily.

## **VISITOR USE AND INTERPRETATION**

**Circulation system has minimal conflicts and allows visitors access to the former navy base property.**

- Existing parking and circulation are evaluated and redesigned to make the base more hospitable to pedestrians in accordance with design guidelines (see Appendix E for suggested design guidelines). Parking is consolidated and screened so that pavement may be removed and landscape restored.

**The navy base feels like a campus in a national park setting.**

- Removal of pavement and redesigning the landscape will help change the military setting to one more suitable for education and interpretation within a national park. In addition, design standards will be adopted for compatible paving, sidewalks, lighting, benches, signs, and related elements. Incompatible elements that diminish enjoyment of the night sky and natural soundscape would be mitigated or removed.

**New uses support and enhance the quiet, natural visitor experience and the mission of Acadia National Park.**

- Criteria would be set and proposed new programs evaluated to ensure consistency with park mission and acceptable levels of use in the various management zones. Activity levels similar to those present in 2000 would be acceptable, as they were compatible with nearby park use as evidenced by visitor surveys and resource studies. New uses might include a wide variety of activities including research, education for students of all ages, artist-in-residence, conferences, retreats, and special events.



**Acadia National Park and its partners provide facilities and support for day use and residential programs.**

- Most buildings on the base would be used for park or partner programs or for related operation and maintenance.
- The commissary would be converted to large, flexible meeting space for up to approximately 125 people with state-of-the-art telecommunications and multiple computer stations. The medical clinic would be converted to laboratory and office space for researchers. The barracks and galley would be renovated to serve as the primary short-term residential facility and cafeteria by making improvements to meet fire protection codes and accessibility requirements for people with disabilities.
- The Rockefeller Building, Schooner Club, and chapel would be rehabilitated to meet accessibility requirements, abate asbestos-containing materials and lead-based paint, and upgrade/reconfigure building interiors for improved safety and efficiency. The interior of the historic Rockefeller Building would be modified for use as the primary visitor contact station for the Schoodic District. The first floor would be used for visitor information and orientation, SERC program registration, and interpretive exhibits. Other apartments in the Rockefeller Building would be converted to office space for the park and SERC partners. The Schooner Club would be rehabilitated to function as a dining and meeting facility and for other purposes.
- Fire protection deficiencies would be corrected in buildings at SERC. Improvements would consist of installing and upgrading fire suppression and detection systems; installing fire pumps to increase the pressure of water supplies for sprinkler systems; and improving the reliability of power and communications systems.
- Accommodations would be available for up to 170 program participants and 20 staff members in dormitories, apartments, and campsites. Dormitories would house

younger students while adult students and staff would use townhouse apartments.

- Camping facilities would be available for research learning center–related programs and activities and to support park operations. A public campground would not be operated at Schoodic.

**Visual intrusions on the Schoodic District's highly valued scenery, including views to and from the peninsula, are minimized.**

- New development will not compete with or dominate park features, or interfere with visitor enjoyment of the scenery.
- The installation of towers and other structures taller than tree height will be limited to those that are directly related to the mission and programs of NPS or Schoodic Education and Research Center. The design and siting of towers and other structures will be integrated into the park landscape to minimize visual impacts. The total number of towers and similar structures will be minimized by sharing facilities to the extent possible.
- Towers and similar structures will not be located outside of the Developed Zone of the former navy base.
- Evaluate the option of removing the water tower and replacing it with a ground-level storage tank. Replace the water tower if it is economically, operationally, and environmentally feasible.

**COOPERATIVE EFFORTS AND PARTNERSHIPS**

**Nonprofit organization manages programs and facilities.**

- A nonprofit, with appropriate mandates from NPS, would assist in carrying out the mission of SERC by promoting research and education, cultivating and facilitating partnerships, and managing certain facilities at Schoodic.

- The nonprofit organization would assist in site management by coordinating schedules for shared facilities, such as meeting rooms and lodging. The nonprofit would also manage services such as food and hospitality, using generated revenues to offset program and site operational costs.
- Responsibilities of partners would be identified in short and long-term agreements, which would ensure adherence to NPS standards and criteria.

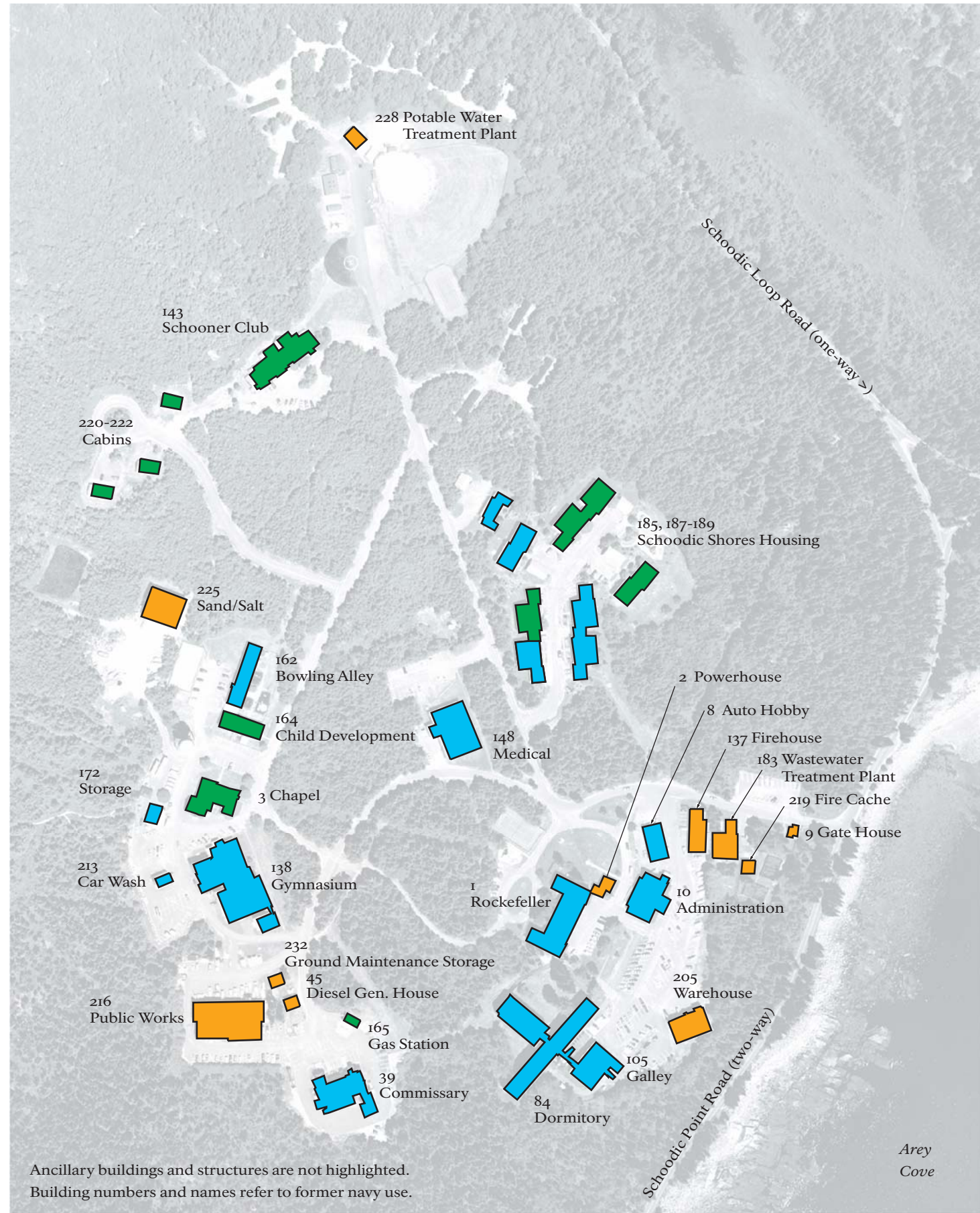
### **OPERATIONAL EFFICIENCY**

**Unneeded buildings are removed to reduce operational costs, improve site conditions, and allow for maximum native plant restoration.**

- Buildings would be used for park operations or SERC purposes as shown in the accompanying site plan for Alternative C.
- NPS would lease or assign SERC buildings, and other facilities as may be appropriate, to a nonprofit for management and operation.
- Non-historic buildings and structures would be evaluated for removal when NPS determines that there is no viable and cost effective use related to the mission and purpose of Acadia National Park or SERC. The NPS will remove buildings when the necessary approvals and compliance documents are completed, and funding is available.
- Buildings and structures designated for removal will be secured in the interim. Small storage, maintenance, and obsolete utility buildings would be removed to improve the appearance and campus-like character of the former navy base property, and to allow for a more efficient use of space. In addition to the minor buildings identified for immediate removal under this alternative, the park would remove structures not needed by SERC, such as the hockey rink and mobile home pads, to allow for native plant revegetation or the relocation of existing parking spaces.

### **New programs demonstrate financial viability.**

- All proposed SERC programs would be expected to show how operating costs would be generated from user fees, donations, and appropriated and other funds. A full range of revenue-generating options would be explored to offset program costs. Options to be examined might include sales items, program fees, and contributions by sponsoring organizations. Non-NPS programs will be expected to pay rent for office and program spaces and contribute to the use of shared SERC facilities, such as conference rooms.



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# ALTERNATIVE A NO ACTION

DRAFT Schoodic General Management Plan Amendment

Figure 9

- Schoodic Education and Research Center (SERC)
- Site operations
- Secured indefinitely

## POSSIBLE BUILDING REUSE:

<b>3 CHAPEL</b> Program space. Office.	<b>185, 187-189 SCHOODIC SHORES</b> Housing.
<b>9 GATEHOUSE</b> Visitor contact.	<b>216 PUBLIC WORKS</b> Offices. Storage. NPS maintenance shop and garages.
<b>143 SCHOONER CLUB</b> Meeting rooms.	<b>220-222 CABINS</b> Housing.
<b>164 CHILD DEVELOPMENT</b> Program space.	<b>225 SAND/SALT STORAGE</b> Maintenance.
<b>165 GAS STATION</b> Scientific monitoring station.	

## CONCEPT:

Continue current operations.  
Parklands continue to be managed as they have been,  
with some changes related to the departure of the navy and  
to reflect the findings of recent research.

## BUILDINGS:

Minimal building reuse.

## PARTNERSHIP:

Occasional public or program use of former navy base campus.

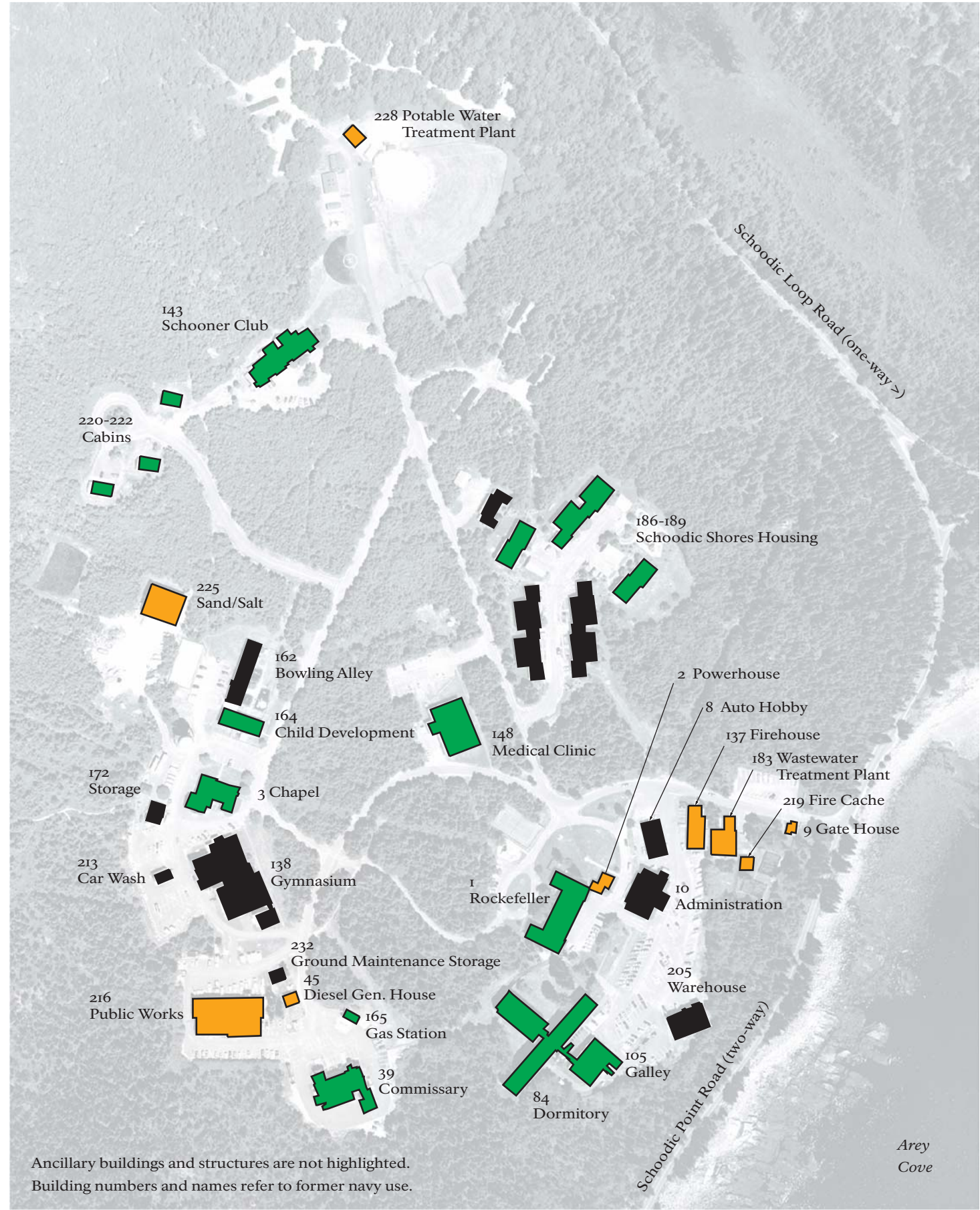
## PROJECTED USE LEVELS 2010-15:

20 SERC program participants per day.  
22 overnight accommodations.  
Schoodic District annual recreation visits 258,500.



0 150 ft 300 ft





Ancillary buildings and structures are not highlighted.  
Building numbers and names refer to former navy use.



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ALTERNATIVE B  
NPS MANAGEMENT

DRAFT Schoodic General Management Plan Amendment

Figure 10

- Schoodic Education and Research Center (SERC)
- Site operations
- Removed if determined to be unneeded.

POSSIBLE BUILDING REUSE:

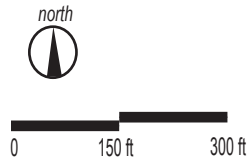
1 ROCKEFELLER Offices and meeting space. Visitor orientation and exhibits.	165 GAS STATION Scientific monitoring station.
3 CHAPEL Classrooms, meeting space.	137 FIREHOUSE 219 FIRE CACHE Emergency vehicle storage.
9 GATEHOUSE Visitor contact.	186-189 SCHOODIC SHORES Housing.
39 COMMISSARY Meeting space.	205 WAREHOUSE Storage. Move to new location.
84 DORMITORY Housing.	216 PUBLIC WORKS Offices. NPS maintenance shop and garages. Storage.
105 GALLEY Food service.	220-222 CABINS Housing.
143 SCHOONER CLUB Meeting rooms, classrooms.	225 SAND/SALT STORAGE Sand and salt storage.
148 MEDICAL Research laboratories, offices, library.	
164 CHILD DEVELOPMENT Program space.	

**CONCEPT:**  
Modest expansion of Schoodic Education and Research Center (SERC), the Acadia National Park research learning center, using former navy base facilities. Priority given to existing research partners.

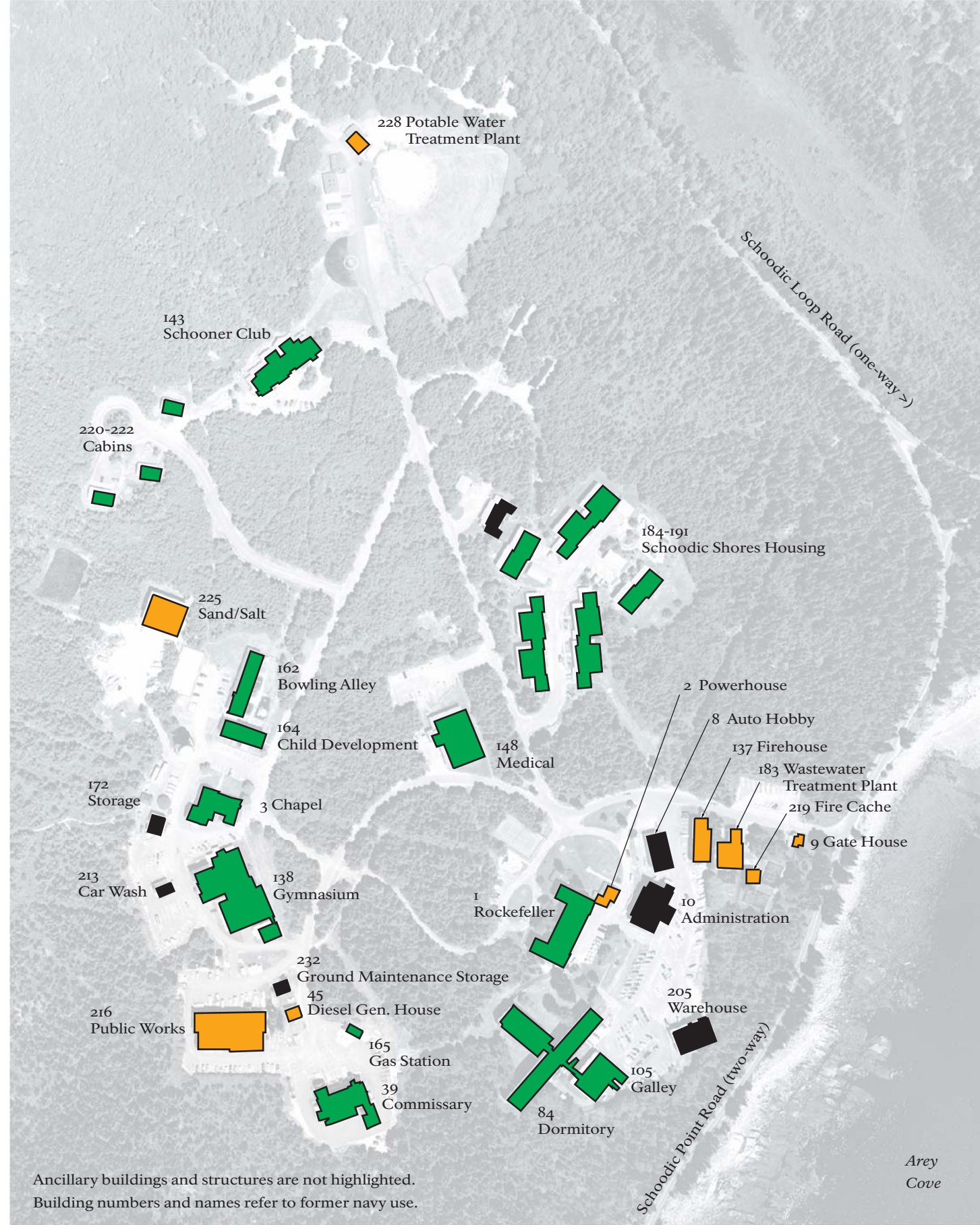
**BUILDINGS:**  
Some building reused. Buildings not needed by the park or SERC are secured or removed.

**PARTNERSHIP:**  
NPS manages Schoodic District and SERC with minimal partnership help.

**PROJECTED USE LEVELS 2010-15:**  
150 SERC program participants per day.  
90 overnight accommodations.  
Schoodic District annual recreation visits 272,000.







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# ALTERNATIVE C COLLABORATIVE MANAGEMENT (Preferred)

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Figure 11

- Schoodic Education and Research Center (SERC)
- Site operations
- Removed if determined to be unneeded

POSSIBLE BUILDING REUSE:

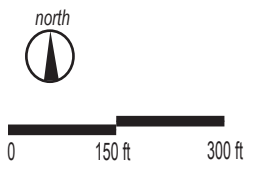
<b>1 ROCKEFELLER</b> NPS and partner offices, meeting space. Visitor orientation and exhibits.	<b>143 SCHOONER CLUB</b> Meeting rooms, classrooms.
<b>3 CHAPEL</b> Classrooms, meeting space.	<b>148 MEDICAL</b> Research laboratories, offices, library.
<b>9 GATEHOUSE</b> Visitor contact.	<b>162 BOWLING ALLEY</b> Research. Program space.
<b>39 COMMISSARY</b> Flexible indoor and outdoor space for education. State-of-the-art telecommunications and computer stations.	<b>164 CHILD DEVELOPMENT</b> Program space. <b>165 GAS STATION</b> Scientific monitoring station.
<b>84 DORMITORY</b> Housing.	<b>184-191 SCHOODIC SHORES</b> Housing.
<b>105 GALLEY</b> Food service.	<b>205 WAREHOUSE</b> Storage. Move to new location.
<b>138 GYMNASIUM</b> Assembly space and offices. Athletic facilities. <b>137 FIREHOUSE</b> NPS emergency vehicle storage.	<b>216 PUBLIC WORKS</b> Offices. NPS maintenance shop and garages. Storage.
<b>219 FIRE CACHE</b> NPS emergency vehicle storage.	<b>220-222 CABINS</b> Housing.
	<b>225 SAND/SALT STORAGE</b> Sand and salt storage.

**CONCEPT:**  
Schoodic Education and Research Center (SERC)  
is managed by a nonprofit organization under which  
many organizations advance the mission of Acadia  
National Park and share management responsibilities.

**BUILDINGS:**  
Reuse most buildings. Revenues generated by  
programs offset most operational costs.

**PARTNERSHIP:**  
Nonprofit assists NPS to manage SERC campus and programs.

**PROJECTED USE LEVELS 2010-15:**  
350 SERC program participants per day.  
190 overnight accomodations.  
Schoodic District annual recreation visits 290,000.







**ROCKEFELLER BUILDING:** In Alternatives B and C this distinctive building would be the place to greet program participants. It would also house partner offices, one or two conference rooms, small exhibits, and other facilities to be shared by Schoodic Education and Research Center programs.



**VIEW FROM THE ROCKEFELLER BUILDING:** Removing pavement and a warehouse would allow this vista to be reclaimed. Wildflower meadows and views to the ocean would demonstrate how low-maintenance native plant materials can be used to be both functional and compatible with a historic building.



**EDUCATION BUILDING:** In Alternative C this building would provide meeting rooms and flexible indoor and outdoor space for education programs.



**SCHOODIC EDUCATION AND RESEARCH CENTER**

Acadia National Park  
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National Park Service

DRAFT Schoodic General Management Plan Amendment



Figure 13

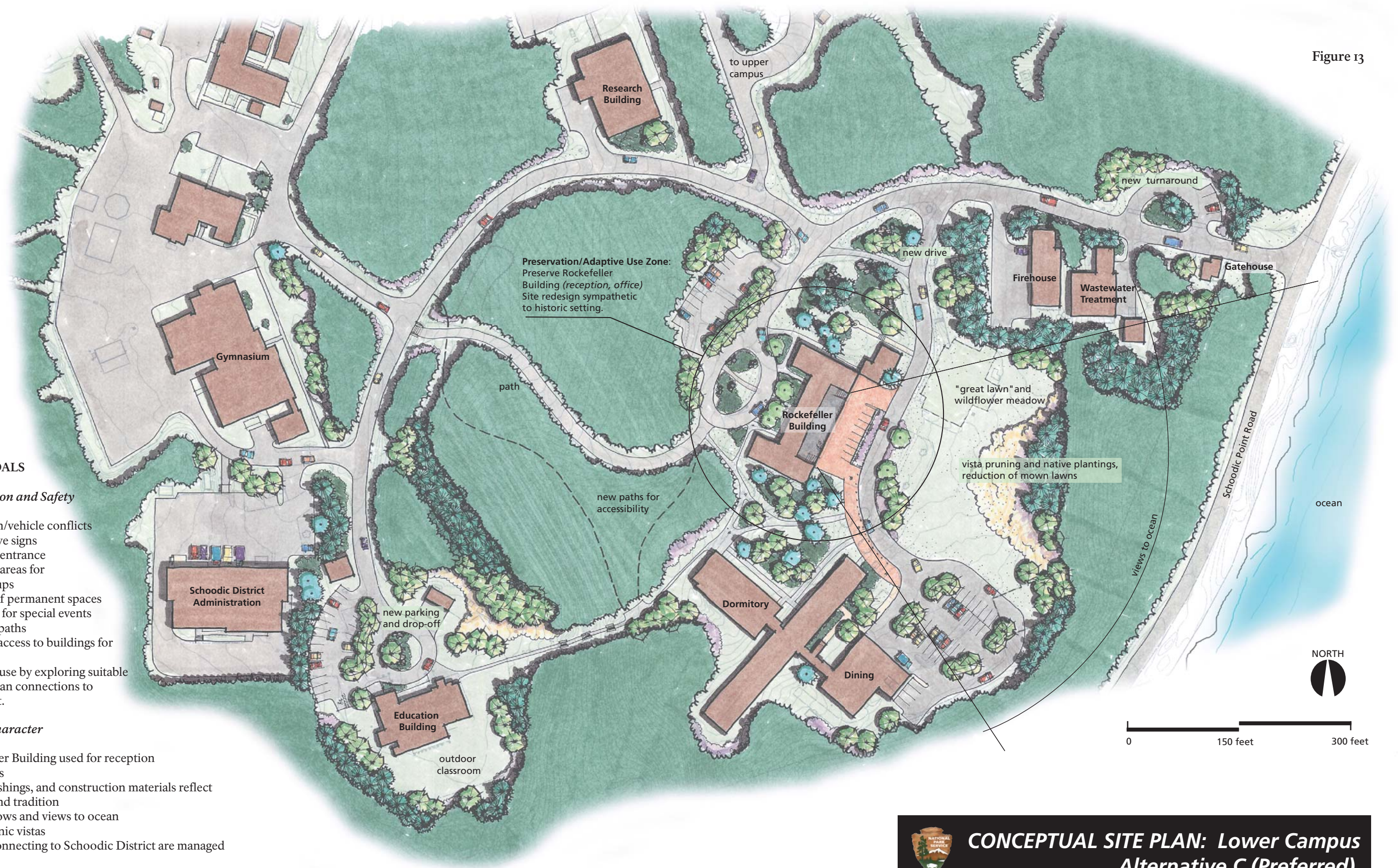
## SITE DESIGN GOALS

### *Improve Circulation and Safety*

- reduce pedestrian/vehicle conflicts
- clear and attractive signs
- redesign campus entrance
- organize parking areas for specific user groups
- limited number of permanent spaces
- overflow parking for special events
- new barrier-free paths
- maintain proper access to buildings for fire protection
- reduce vehicular use by exploring suitable bike and pedestrian connections to Schoodic District.

### *Create Campus Character*

- historic Rockefeller Building used for reception and partner offices
- new design, furnishings, and construction materials reflect Acadia's history and tradition
- wildflower meadows and views to ocean
- create/restore scenic vistas
- paths and trails connecting to Schoodic District are managed
- low maintenance
- uniform sign system
- change roadway lighting design to preserve night sky
- remove pavement to reduce runoff and improve groundwater recharge





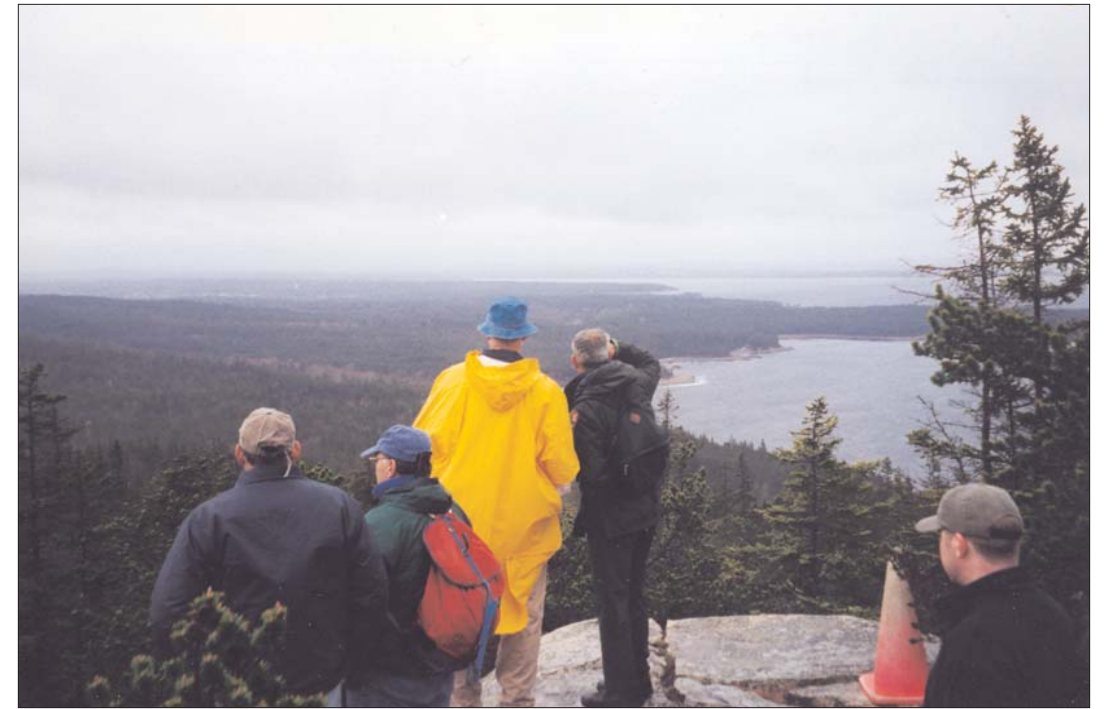
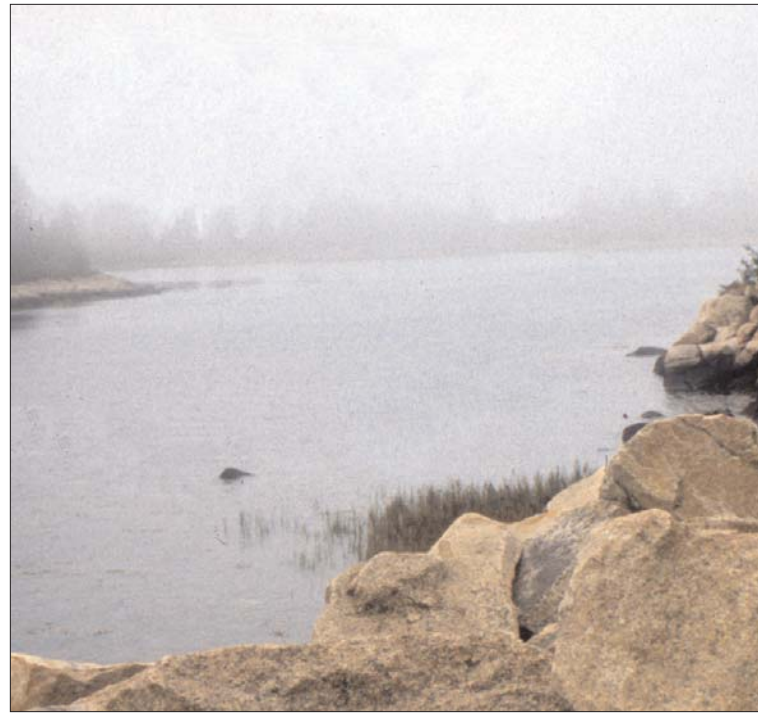
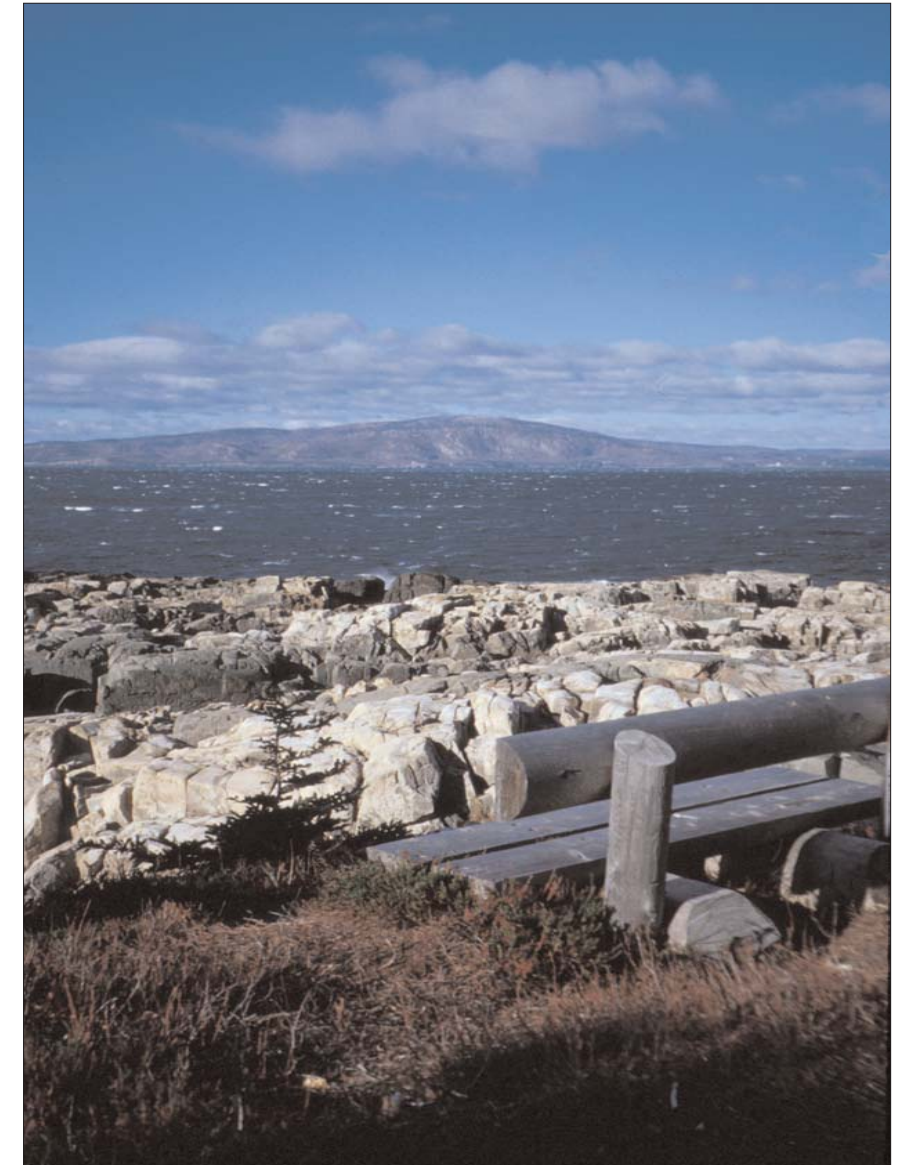


Figure 14. Schoodic Today

The Schoodic District offers opportunities for quiet enjoyment. These views show the importance of close cooperation with neighboring communities to protect habitat and vistas that extend beyond park boundaries.





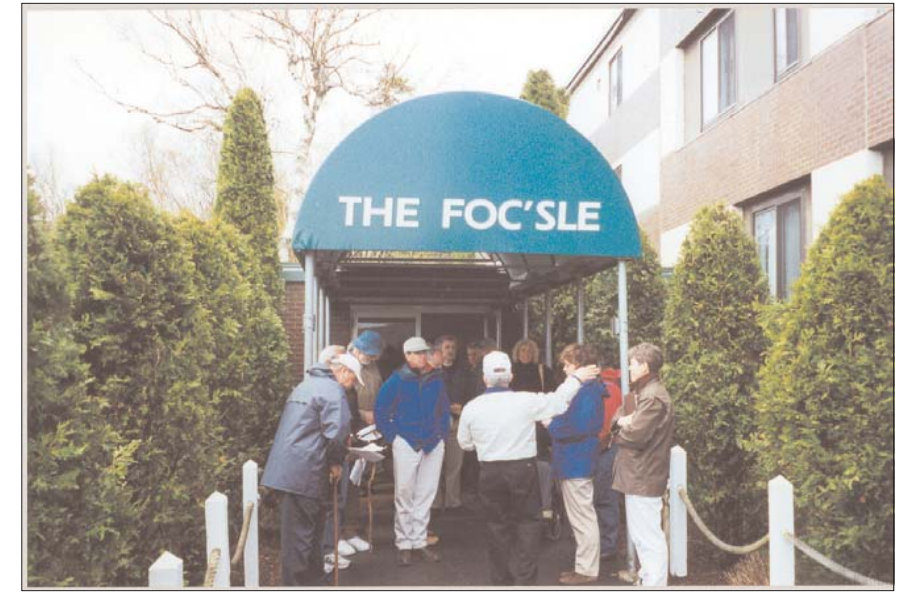


Figure 15. Schoodic Education and Research Center Campus

Facilities on the Schoodic Education and Research Center campus can be adapted for park and program use. These photos were taken from 2000-2002 during preparation of this plan.



TABLE 2. COMPARISON OF ALTERNATIVES BY GOALS (Sheet 1 of 6)

ALTERNATIVE A: NO ACTION		ALTERNATIVE B: NPS MANAGEMENT	ALTERNATIVE C: COLLABORATIVE MANAGEMENT (PREFERRED)
CONCEPT	Continue current operations. Parklands continue to be managed as they have been, with some changes related to the departure of the Navy and to reflect the findings of recent research.	Modest expansion of Schoodic Education and Research Center (SERC), the Acadia National Park research learning center, using former navy base facilities. Priority given to existing research partners.	Schoodic Education and Research Center (SERC) is a nonprofit organization under which many organizations advance the mission of Acadia National Park and share management responsibilities.
BUILDINGS	Minimal building reuse.	Some building reused. Buildings not needed by the park or SERC are secured or removed.	Reuse most buildings. Revenues generated by programs offset most operational costs.
PARTNERSHIP	Occasional public or program use of former navy base campus.	NPS manages Schoodic District and SERC with minimal partnership help.	Nonprofit assists NPS to manage SERC campus and programs.
PROJECTED USE LEVELS 2010–15	20 SERC program participants per day. 22 overnight accommodations. Schoodic District annual recreation visits 258,500.	150 SERC program participants per day. 90 overnight accommodations. Schoodic District annual recreation visits 272,000.	350 SERC program participants per day. 190 overnight accommodations. Schoodic District annual recreation visits 290,000.
RESOURCE MANAGEMENT			
GOALS	• Schoodic's natural, cultural, and scenic resources and associated values are protected, restored, and maintained in good condition and managed within their broader ecosystems and cultural context.		
	• Design guidelines are used to ensure that changes to the landscape or structures are appropriate to the management zone in which they are located.		
MANAGEMENT PRESCRIPTIONS COMMON TO ALL ALTERNATIVES	<ul style="list-style-type: none"><li>- All resource management decisions are based on full consideration of the best available natural and cultural resource information, and are made by professional staff supplied with requisite technical and research support.</li><li>- Management zoning guides use of the Schoodic District, and is used along with design guidelines and carrying capacity guidelines to shape management actions.</li><li>- Schoodic District's natural lightscape is preserved.</li><li>- Schoodic District's natural soundscape is preserved.</li><li>- Vegetation is restored to a natural condition in areas that have been or may be altered by human activity.</li><li>- Land use on the Schoodic Peninsula and surrounding islands is compatible with Acadia National Park values and purposes.</li></ul>		
ACTIONS COMMON TO ALL ALTERNATIVES	<ul style="list-style-type: none"><li>• Natural and cultural resources are inventoried and monitored.</li><li>• The U.S. Navy collection (documents, photographs, objects, and electronic and magnetic media) at the former navy base is preserved for current and future use by researchers and the public.</li><li>• Using the NPS Visitor Experience and Resource Protection methodology, baseline data is obtained to identify indicators, develop standards, and determine acceptable levels of impacts from visitation that can be monitored over time.</li><li>• The Rockefeller Building, powerhouse, and proposed Schoodic Peninsula Historic District are listed in the National Register of Historic Places, and historic structure and cultural landscape reports are completed to determine treatments for historic resources.</li><li>• Determine the extent to which tidal flows may be restricted on the inland side of the Schoodic Loop Road, particularly at the Big Moose Island causeways, and quantify any resulting ecological changes. If warranted, restore natural hydrologic regimes to mitigate impacts based on the results of the investigation.</li><li>• Evaluate the potential for restoring the ranger station to a condition that would qualify it as a contributing resource to the proposed Schoodic Peninsula Historic District (National Park Service, 2001b). Complete necessary treatment according to The Secretary of the Interior’s Standards for the Treatment of Historic Properties.</li><li>• Archeological and ethnographic resources are inventoried and documentation is available before ground-disturbing activities are proposed.</li><li>• Designate Research Natural Areas consistent with NPS guidelines to preserve largely undisturbed ecological community types for non-manipulative research and educational use. Research Natural Areas will serve as benchmarks for assessing long-term ecological changes in other locations. Research Natural Areas will be managed to prevent any activity that could alter existing natural conditions and processes. Management actions may include limiting access to all uses other than non-manipulative research. Areas within the Protected Natural Area Subzone (see Figure 8), particularly the maritime shrubland community on Little Mosse Island and the intertidal zone, will be evaluated for Research Natural Area designation.</li><li>• Critical habitats are identified and located in proper management zones, and visitor use is managed to protect resources (e.g., rare plants, Jack Pine Woodland, eagle and seabird nesting sites, wildlife corridors, islands, intertidal zone).</li><li>• Carrying capacity indicators and standards are established for zones and monitored over time to protect resources and the visitor experience.</li><li>• Adopt design guidelines to ensure design consistency and quality so that SERC will have a unique identity compatible with Acadia National Park.</li><li>• Maintain Schoodic's quiet character and natural soundscape with minimal disruption from human activities.</li><li>• Preserve, to the greatest extent possible, the night sky of the Schoodic District by restricting the use of artificial lighting to those areas where security, human safety, and other site management requirements must be met.</li><li>• Utilize minimal impact lighting techniques, and shield the use of artificial lighting where necessary to prevent the disruption of the night sky. Remove or retrofit inappropriate outdoor lighting to preserve the night sky.</li><li>• Cooperate with landowners and land trusts to protect lands of value to the park, pursuant to the 1986 boundary legislation (P.L. 99-420) and the park's Land Protection Plan.</li></ul>		

TABLE 2. COMPARISON OF ALTERNATIVES BY GOALS (Sheet 2 of 6)

ALTERNATIVE A: NO ACTION		ALTERNATIVE B: NPS MANAGEMENT		ALTERNATIVE C: COLLABORATIVE MANAGEMENT (PREFERRED)	
ACTIONS COMMON TO ALL ALTERNATIVES (continued)	<ul style="list-style-type: none"><li>• Preserve, to the greatest extent possible, the natural soundscapes of the Schoodic District. The natural soundscape is the aggregate of all the natural sounds that occur in parks in the absence of human-caused sound.</li><li>• Prevent or minimize all noise that, through frequency, magnitude, or duration, adversely affects the natural soundscape or other park resources or values, or that exceeds levels that have been identified as being acceptable to, or appropriate for, visitor uses at the Schoodic District.</li><li>• Revegetate areas that have been or may be disturbed by human activity, including areas where buildings and other facilities may be removed and not replaced by other development. Use seeds, cuttings, or transplants representing plant species and gene pools native to the Schoodic District, as feasible.</li><li>• Where necessary to preserve and protect the desired condition of specific cultural resources and landscapes, plants generally will be managed to reflect the character of the landscape that prevailed during the historic period. Efforts should be made to extend the lives of specimen trees dating from the historic period being commemorated.</li><li>• Selective vegetation will be periodically removed from around buildings to maintain defensible space that will protect buildings in the event of a wildfire.</li><li>• Remove perimeter chainlink fence and revegetate disturbed area.</li><li>• Monitor land use proposals and changes to surrounding lands, and evaluate their potential impacts.</li><li>• Participate in the land-use planning and regulatory processes of neighboring jurisdictions to encourage compatible adjacent land uses and avoid or mitigate adverse impacts to park resources and values.</li><li>• Work cooperatively with surrounding landowners, local and state governments, land trusts, and others so that the use of non-park lands on the Schoodic Peninsula is compatible with park resources and values. The NPS will consider all available land protection techniques.</li></ul>				
	MANAGEMENT PRESCRIPTIONS	- The historic Rockefeller Building and powerhouse are maintained for future preservation and adaptive reuse.		- The exterior of the historic Rockefeller Building is preserved and the interior rehabilitated for program use. - The surrounding landscape is designed and reconfigured to provide a suitable setting for the Rockefeller Building as a primary focal point of the campus.	
ACTIONS	• The treatment approach for the Rockefeller Building and powerhouse will be "preservation," as provided under <i>Secretary of the Interior's Standards for the Treatment of Historic Properties (1995)</i> . This treatment focuses on the protection and stabilization of existing historic materials. Because this alternative would not include removal of pavement or unneeded buildings, landscape restoration would not occur.		• The Rockefeller Building which now contains apartments and offices would be adapted to include more offices, a conference room, a small visitor contact and exhibit space, and restrooms. While the exterior of the building would be preserved, the interior would be modified to accommodate programs. Minimal reconfiguring of the interior spaces would be required, as new uses would fit the residential scale of the building without necessitating any major structural changes.		
MANAGEMENT PRESCRIPTIONS	- No road or building removal.		- Disturbed lands are revegetated after removal of roads or buildings.		
ACTIONS	• Landscape maintained in current condition.		• 40 acres of disturbed landscape are revegetated.		• 16 acres of disturbed landscape are revegetated.
			• Removing asphalt and redesigning the landscape around the Rockefeller Building would help provide a setting suitable for a campus within a national park. The landscape around the building was designed in the 1930s in consultation with National Park Service landscape architects and included native plantings. Grading and planting plans from 1934 are available and should be referenced while creating a contemporary design for the space to address functional needs such as reducing pedestrian and vehicular circulation conflicts.		
VISITOR USE AND INTERPRETATION					
GOALS	<ul style="list-style-type: none"><li>• The quiet, natural visitor experience of the Schoodic District, offering opportunities for solitude now enjoyed by the public, is maintained.</li><li>• Visitors have a safe and enjoyable visit.</li><li>• Educational offerings and compatible activities are increased.</li><li>• Research opportunities consistent with the park mission are supported and encouraged.</li><li>• The former navy base is adapted as a campus for the Schoodic Education and Research Center, the Acadia National Park research learning center.</li><li>• Recreational and other uses do not impair natural or cultural resources or the visitor experience.</li></ul>				
MANAGEMENT PRESCRIPTIONS COMMON TO ALL ALTERNATIVES	<ul style="list-style-type: none"><li>- Visitors understand the significance of the resources in the Schoodic District.</li><li>- Public facilities are safe and universally accessible.</li><li>- The impacts of private motor vehicles on park resources and the visitor experience are monitored and minimized.</li><li>- Visitor use is compatible with the Schoodic District's resources and values.</li><li>- Trails are managed according to guidance provided in the park's Hiking Trails Management Plan.</li><li>- A comprehensive sign program enhances the Schoodic District.</li></ul>				

TABLE 2. COMPARISON OF ALTERNATIVES BY GOALS (Sheet 3 of 6)

ALTERNATIVE A: NO ACTION		ALTERNATIVE B: NPS MANAGEMENT	ALTERNATIVE C: COLLABORATIVE MANAGEMENT (PREFERRED)
ACTIONS COMMON TO ALL ALTERNATIVES	<ul style="list-style-type: none"><li>• Visitor information and interpretive messages will be provided through various media, including Internet websites.</li><li>• Buildings and facilities open to the public will be evaluated and modified to meet current safety standards.</li><li>• All buildings and facilities will be accessible to, and usable by, persons with disabilities to the greatest extent reasonable, in compliance with all applicable laws, regulations, and standards.</li><li>• Buildings and facilities will be modified to ensure that public programs can be provided in accessible locations.</li><li>• The Schoodic Loop Road will be maintained as a one-way scenic drive beginning in Winter Harbor off State Route 186, with a two-way spur to Schoodic Point before rejoining State Route 186 in Gouldsboro.</li><li>• Develop alternative transportation system approaches to minimize use of private motor vehicles in the park. Consider the use of shuttle buses and improvements to expand bicycling.</li><li>• Limit parking to the capacity of existing lots. The current capacity at the former navy base is 350 cars and this would not be exceeded, although lots might be relocated within the site. Parking will be permitted only in designated spaces in established lots, and vehicle size will be restricted in lots where turning space is limited. The cooperation of the state and neighboring towns will be sought in developing parking facilities outside of the park for use in connection with an alternative transportation system.</li><li>• Prevent parking along roadsides where resource damage may occur or limited parking is desirable, including roads adjacent to Little Moose Island/East Pond and Pond Island/West Pond.</li><li>• Provide opportunities for forms of enjoyment that are uniquely suited and appropriate to the resources of the Schoodic District, and defer to local and state governments, private industry, and non-governmental organizations to meet the public's broader spectrum of recreational needs and demands.</li><li>• Visitor use, including recreational activities, is appropriate to the purpose for which the park was established. Activities should foster an understanding of, and appreciation for, park resources and values, or promote enjoyment through a direct association and interaction with park resources without causing unacceptable impacts to park resources or values.</li><li>• The dock at Frazer Point will be available for recreational purposes and NPS administrative use only. No ferry or commercial docking will be allowed.</li><li>• Retain the configuration of trails in the Schoodic District and preserve their character-defining features by applying the appropriate historic preservation treatment.</li><li>• Revegetate most of the social trails on Little Moose Island. Rehabilitate selected social trails to establish a new 0.75-mile loop trail. The trail would be sensitive to the vegetation and preserve the visitor experience. Management actions to preserve opportunities for solitude and protect vegetation on Little Moose Island will include, but are not limited to, temporary closures, group size limits, and overall visitation limits, as well as increased education efforts. To the degree possible, access to Little Moose Island will be confined to a single point of crossing to reduce impacts on resources.</li><li>• Minimize potential resource impacts to the shoreline accessible from former navy base trails, including but not limited to, temporary closures, group size limits, and overall visitation limits.</li><li>• Visitor education efforts will include providing "Leave No Trace" information at trailheads located on the former navy base.</li><li>• The Sundew Trail will be improved according to NPS trail construction standards and designated for administrative use only. The Sundew Trail will not be promoted or appear on NPS maps.</li><li>• Designate the Alder Trail for bicycle use if determined to be feasible and appropriate.</li><li>• In cooperation with neighboring towns and the Maine Department of Transportation, implement a comprehensive sign plan for the Schoodic District consistent with National Park Service design criteria and standards under the UniGuide Program (2002). The plan will minimize the number of signs inside and outside the park while increasing their effectiveness. Signs within the Schoodic Education and Research Center will be distinctively designed to reflect the character and functions of the site, while maintaining compatibility with NPS standards (see design guidelines in Appendix E).</li><li>• Signs will be held to the minimum number, size, and wording required to serve their intended functions, so as to minimally intrude upon the natural and historic settings. They will be placed where they do not interfere with park visitors' enjoyment and appreciation of park resources.</li><li>• Traffic signs along the Schoodic Loop Road and within SERC campus will be reduced to the minimum necessary to meet information, warning, and regulatory needs, and to avoid confusion and visual intrusion.</li></ul>		
MANAGEMENT PRESCRIPTIONS	<ul style="list-style-type: none"><li>- Under this status quo alternative, visitors would continue to enjoy the quiet uncrowded experience they value today.</li><li>- Information and interpretation would be limited to the current system of wayside, road and trail signs, park fact sheets, and occasional contact with interpretive, protection, and maintenance staff and volunteers. The Frazer Point picnic area and restrooms at Frazer and Schoodic Point would be maintained.</li><li>- There would be few programs for the general public, although there might be some limited use of base facilities for educational activities, such as the park's education camp.</li><li>- Circulation on the base would remain dominated by vehicles with large paved areas and minimal provisions for pedestrians.</li></ul>	<ul style="list-style-type: none"><li>- Circulation system has minimal conflicts and allows visitors access to the former navy base property.</li><li>- The former navy base feels like a campus within a national park setting.</li><li>- New uses support and enhance the quiet natural visitor experience and the mission of Acadia National Park.</li><li>- Acadia National Park provides facilities and support for a modest amount of day use and residential programs.</li><li>- Visual intrusions on the Schoodic District's highly valued scenery, including views to and from the peninsula, are minimized.</li><li>- For Alternative C only, Acadia National Park and its partners provide facilities and support for day use and residential programs.</li></ul>	
ACTIONS	<ul style="list-style-type: none"><li>• Former navy facilities would be closed to the public for safety reasons and buildings would be secured and closed down. National Park personnel would have a somewhat higher presence than they have currently, primarily to respond to emergencies. Contractors or park staff would provide snow plowing and would maintain roads and utility systems.</li></ul>	<ul style="list-style-type: none"><li>• Existing parking and circulation are evaluated and redesigned to make the base more hospitable to pedestrians in accordance with design guidelines (see Appendix E for suggested design guidelines). Parking is consolidated and screened so that pavement may be removed and the landscape restored.</li></ul>	<ul style="list-style-type: none"><li>• Existing parking and circulation are evaluated and redesigned to make the base more hospitable to pedestrians in accordance with design guidelines (see Appendix E for suggested design guidelines). Parking is consolidated and screened so that pavement may be removed and landscape restored.</li></ul>

**TABLE 2. COMPARISON OF ALTERNATIVES BY GOALS (Sheet 4 of 6)**

ALTERNATIVE A: NO ACTION		ALTERNATIVE B: NPS MANAGEMENT	ALTERNATIVE C: COLLABORATIVE MANAGEMENT (PREFERRED)
<b>ACTIONS (continued)</b>	<ul style="list-style-type: none"><li>• Military structures would predominate, making it difficult to offer a park experience to educational program participants. Access to the shoreline at Big Moose Island would remain limited, as approximately half of it can be reached only from trails originating within the base.</li></ul>	<ul style="list-style-type: none"><li>• Removal of pavement and redesigning the landscape will help change the military setting to one more suitable for education and interpretation within a national park. In addition, design standards will be adopted for compatible paving, sidewalks, lighting, benches, signs, and related elements (see Appendix E). Incompatible elements that diminish enjoyment of the night sky and natural soundscape would be mitigated or removed.</li><li>• Criteria would be set and proposed new programs evaluated to ensure consistency with park mission and acceptable levels of use in the various management zones. Activity levels similar to those present in 2000 would be acceptable, as they were compatible with nearby park use as evidenced by visitor surveys and resource studies. New uses might include a wide variety of activities including research, education for students of all ages, artist-in-residence, conferences, retreats, and special events.</li><li>• The Rockefeller Building would provide offices for partner program organizations, which would be supplemented by program and meeting space in the chapel, medical clinic, Schooner Club, and commissary. A small exhibit area, visitor contact station, and restrooms would be located in the Rockefeller Building and could include a book sales operation. The galley would provide food service to occupants of the barracks and other housing units.</li><li>• Some buildings on the base would be used for park programs or for related operation and maintenance.</li><li>• Accommodations would be available for 80 program participants and 10 staff members in dormitories, apartments and campsites. Dormitories would house younger students, while adult students and staff would use apartments.</li><li>• Camping facilities would be available for research learning center-related programs and activities and to support park operations. A public campground would not be operated at Schoodic.</li><li>• New development will not compete with or dominate park features, or interfere with visitor enjoyment of the scenery.</li><li>• The installation of towers and other structures taller than tree height will be limited to those that are directly related to the mission and programs of the NPS or Schoodic Education and Research Center. The design and siting of towers and other structures will be integrated into the park landscape to minimize visual impacts. The total number of towers and similar structures will be minimized by sharing facilities to the extent possible.</li><li>• Towers and similar structures will not be located outside the Developed Zone of the former navy base.</li><li>• Evaluate the option of removing the water tower and replacing it with a ground-level storage tank. Replace the water tower if it is economically, operationally, and environmentally feasible.</li><li>• Criteria would be set and proposed new programs evaluated to ensure consistency with park mission and acceptable levels of use in the various management zones. Activity levels similar to those present in 2000 would be acceptable, as they were compatible with nearby park use as evidenced by visitor surveys and resource studies. New uses might include a wide variety of activities including research, education for students of all ages, artist-in-residence, conferences, retreats, and special events.</li></ul>	<ul style="list-style-type: none"><li>• Removal of pavement and redesigning the landscape will help change the military setting to one more suitable for education and interpretation within a national park. In addition, design standards will be adopted for compatible paving, sidewalks, lighting, benches, signs, and related elements.</li><li>• Incompatible elements that diminish enjoyment of the night sky and natural soundscape would be mitigated or removed.</li><li>• Most buildings on the base would be used for park or partner programs or for related operation and maintenance.</li><li>• Accommodations would be available for up to 170 program participants and 20 staff members in dormitories, apartments, and campsites. Dormitories would house younger students, while adult students and staff would use townhouse apartments.</li><li>• The commissary would be converted to a large, flexible meeting space for up to approximately 125 people with state-of-the-art telecommunications and multiple computer stations. The medical clinic would be converted to laboratory and office space for researchers. The barracks and galley would be renovated to serve as the primary short-term residential facility and cafeteria by making improvements to meet fire protection codes and accessibility requirements for people with disabilities.</li><li>• The Rockefeller Building, Schooner Club, and chapel would be rehabilitated to meet accessibility requirements, abate asbestos-containing materials and lead-based paint, and upgrade/reconfigure building interiors for improved safety and efficiency. The interior of the historic Rockefeller Building would be modified for use as the primary visitor contact station for the Schoodic District. The first floor would be used for visitor information and orientation, SERC program registration, and interpretive exhibits. Other apartments in the Rockefeller Building would be converted to office space for the park and SERC partners. The Schooner Club would be rehabilitated to function as a dining and meeting facility and for other purposes.</li><li>• Camping facilities would be available for research learning center-related programs and activities and to support park operations. A public campground would not be operated at Schoodic.</li><li>• Fire protection deficiencies would be corrected in buildings at SERC. Improvements would consist of installing and upgrading fire suppression and detection systems; installing fire pumps to increase the pressure of water supplies for sprinkler systems; and improving the reliability of power and communications systems.</li><li>• New development will not compete with or dominate park features, or interfere with visitor enjoyment of the scenery.</li><li>• The installation of towers and other structures taller than tree height will be limited to those that are directly related to the mission and programs of the National Park Service or Schoodic Education and Research Center. The design and siting of towers and other structures will be integrated into the park landscape to minimize visual impacts. The total number of towers and similar structures will be minimized by sharing facilities to the extent possible.</li><li>• Towers and similar structures will not be located outside the Developed Zone of the former navy base.</li></ul>

**TABLE 2. COMPARISON OF ALTERNATIVES BY GOALS (Sheet 5 of 6)**

<b><u>ALTERNATIVE A: NO ACTION</u></b>		<b><u>ALTERNATIVE B: NPS MANAGEMENT</u></b>	<b><u>ALTERNATIVE C: COLLABORATIVE MANAGEMENT (PREFERRED)</u></b>
<b><u>ACTIONS</u></b> <b><u>(continued)</u></b>			<ul style="list-style-type: none"><li>• Evaluate the option of removing the water tower and replacing it with a ground-level storage tank. Replace the water tower if it is economically, operationally, and environmentally feasible.</li><li>• Criteria would be set and proposed new programs evaluated to ensure consistency with park mission and acceptable levels of use in the various management zones. Activity levels similar to those present in 2000 would be acceptable, as they were compatible with nearby park use as evidenced by visitor surveys and resource studies. New uses might include a wide variety of activities including research, education for students of all ages, artist-in-residence, conferences, retreats, and special events.</li></ul>
<b><u>GOALS</u></b>	<ul style="list-style-type: none"><li>• Acadia National Park maintains and establishes partnerships to develop research and education programs and to foster stewardship of park resources and values both within and beyond park boundaries.</li><li>• Acadia National Park consults with neighboring communities on matters of mutual concern.</li><li>• Commercial services—e.g. for-profit retail, restaurant, and lodging—are not offered within the park, as these are more appropriately sited in nearby town centers.</li></ul>		
<b><u>MANAGEMENT PRESCRIPTIONS COMMON TO ALL ALTERNATIVES</u></b>	- Acadia National Park and neighboring towns assist each other in emergencies.		
<b><u>ACTIONS COMMON TO ALL ALTERNATIVES</u></b>	<ul style="list-style-type: none"><li>• Mutual aid agreements for medical emergencies and fire protection are maintained with neighboring towns.</li></ul>		
<b><u>MANAGEMENT PRESCRIPTIONS</u></b>	- Planning for the Schoodic Education and Research Center would continue with efforts made to identify research and education partners.	- Park manages programs and facilities.	- Nonprofit organization manages programs and facilities.
<b><u>ACTIONS</u></b>	<ul style="list-style-type: none"><li>• Design studies would continue for buildings targeted for early program and partner use such as the former commissary, medical building, and Rockefeller Building.</li></ul>	<ul style="list-style-type: none"><li>• Park staff would manage programs and facilities under this alternative, with cooperation from organizations, agencies, and educational institutions.</li></ul>	<ul style="list-style-type: none"><li>• A nonprofit, with appropriate mandates from the National Park Service, would assist in carrying out the mission of SERC by promoting research and education, cultivating and facilitating partnerships, and managing certain facilities at Schoodic.</li><li>• The nonprofit organization would assist in site management by coordinating schedules for shared facilities, such as meeting rooms and lodging. The nonprofit would also manage services such as food and hospitality, using generated revenues to offset program and site operational costs.</li><li>• Responsibilities of partners would be identified in short and long-term agreements, which would ensure adherence to NPS standards and criteria.</li></ul>

TABLE 2. COMPARISON OF ALTERNATIVES BY GOALS (Sheet 6 of 6)

OPERATIONAL EFFICIENCY		
GOALS	<ul style="list-style-type: none"><li>Existing buildings are retained if they can be reused in ways that are operationally efficient, environmentally and economically sustainable, and supportive of the mission of Acadia National Park and SERC.</li><li>The Schoodic District has adequate personnel and equipment to fulfill operational responsibilities.</li></ul>	
MANAGEMENT PRESCRIPTIONS COMMON TO ALL ALTERNATIVES	<ul style="list-style-type: none"><li>All park functions, infrastructure, and programs are programmatically and physically sustainable, with principles of conservation applied.</li><li>Visitors to the Schoodic District possess the appropriate park entrance pass and understand how the NPS uses park entrance fees.</li><li>Operational budget increases provide for increased responsibilities.</li></ul>	
ACTIONS COMMON TO ALL ALTERNATIVES	<ul style="list-style-type: none"><li>Facilities are audited for energy efficiency and modified to maximize energy efficiency.</li><li>Proposed program costs are evaluated and business plans prepared to show how funding will be obtained.</li><li>Inform visitors of park entrance fees and how NPS uses fees to protect resources and improve visitor facilities.</li><li>Issue park entrance passes at the Schoodic District and publicize their availability.</li><li>Implement, as may be needed, specific park entrance fee policies and procedures for SERC.</li><li>Budget increases will be sought to meet core mission-related responsibilities for maintenance and protection.</li></ul>	
MANAGEMENT PRESCRIPTIONS	<ul style="list-style-type: none"><li>Management would concentrate on maintaining facilities at the lowest possible cost to protect them until an overall direction has been determined and funding is available to reuse or remove buildings.</li></ul>	<ul style="list-style-type: none"><li>Buildings are evaluated for their reuse potential for Acadia National Park and SERC needs.</li><li>Unneeded buildings are removed to reduce operational costs, improve site conditions, and allow for maximum native plant restoration.</li><li>New programs demonstrate financial viability.</li></ul>
ACTIONS	<ul style="list-style-type: none"><li>Drain pipes and set heating systems at lowest possible temperatures until new uses are known. Buildings and systems would be secured from the weather. Fire detection systems would be deactivated and fire sprinkler systems would be drained.</li></ul>	<ul style="list-style-type: none"><li>All buildings are assessed for their reuse potential. Operating and maintenance costs are reviewed.</li><li>Buildings would be used for park operations or SERC purposes as shown in the accompanying site plans for Alternatives B and C. In Alternative C only, NPS would lease or assign SERC buildings, and other facilities as may be appropriate, to a nonprofit for management and operation.</li><li>Buildings and structures ineligible for the National Register of Historic Places would be evaluated for removal when NPS determines that there is no viable and cost effective use related to the mission and purpose of Acadia National Park or the SERC. The NPS would remove buildings when the necessary approvals and compliance documents were completed, and funding was available. Buildings and structures designated for removal would be secured in the interim.</li><li>Small storage, maintenance, and obsolete utility buildings would be removed to improve the appearance and campus-like character of the former navy base property, and to allow for a more efficient use of space. In addition to the minor buildings identified for immediate removal under these alternatives, the park would evaluate potential amenities such as the ballfield, tennis courts, and hockey rink for their utility to SERC. If not needed, they might be removed to allow for the native plant revegetation or to permit the relocation of existing parking spaces.</li><li>All proposed SERC programs would be expected to show how operating costs would be generated from user fees, donations, and appropriated and other funds. A full range of revenue-generating options would be explored to offset program costs. Options to be examined might include sales items, program fees, and contributions by sponsoring organizations. Non-NPS programs will be expected to pay rent for office and program spaces and contribute to the use of shared SERC facilities, such as conference rooms.</li></ul>

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## ENVIRONMENTALLY PREFERRED ALTERNATIVE AND COMPLIANCE WITH SECTION 101 AND 102(1) OF THE NATIONAL ENVIRONMENTAL POLICY ACT

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In its regulations implementing the National Environmental Policy Act (NEPA), the Council on Environmental Quality indicates agencies must evaluate alternatives and evaluate each for the degree to which they meet certain policy statements, namely sections 101 and 102(1) of the Act (40 CFR 1502.2d). The NPS NEPA regulations indicate this requirement is met by disclosing how each alternative meets the criteria of section 101(b) of NEPA, and noting any inconsistencies with other environmental laws or policies. Because the six criteria in Section 101(b) of NEPA are also used to determine the environmentally preferred alternative, the following narrative both summarizes how alternatives meet sections 101 and 102(1) of NEPA and provides support for the selection of Alternatives B or C as environmentally preferred. None of the alternatives would conflict with any other environmental law or policy.

The environmentally preferred alternative is defined as the alternative(s) that best meets the criteria or objectives set out in Section 101 of the National Environmental Policy Act. In the appendix to its regulations (Appendix B: Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations), the Council on Environmental Quality interprets these criteria as meaning "...causes least damage to the biological and physical environment and best protects, preserves and enhances historic, cultural and natural resources."

The mission statement for Acadia National Park summarizes the National Park Service's commitment to the protection and conservation of scenic, natural, and cultural resources for present and future generations, as well as its commitment to advancing nonconsumptive recreation, education, and scientific research opportunities (see Part One: Purpose and Need for further detail). In addition, it is the stated intent of NPS to uphold the goals of the 1992 *General Management Plan* to the greatest extent in the preparation of this draft plan. Goals for the Schoodic District in that plan include

retaining opportunities for low-density recreation, and preserving its existing naturalness and solitude. While high-density recreation will be supported on the east side of Mount Desert Island (to the west of the study area), the intent is to retain the present character in other areas of the park, including the Schoodic Peninsula, where no new high-density recreation would be developed (NPS 1992).

Using both the CEQ's interpretations of the Section 101 criteria and the alternatives impact information provided in this document, the three alternatives analyzed in this EIS were evaluated as to their consistency with the criteria set forth in Section 101. The assessment is based on comparison of the three alternatives to determine how well each met or furthered Section 101 objectives. A ranking system of 0–4 (0 = no contribution to the objective; 4 = major contribution to the objective) was used to compare the alternatives. Topics/issues used to evaluate consistency with Section 101 were addressed under only one objective to avoid redundancy, despite the fact that some may have potentially been appropriately reviewed under several topics. Attempts were made to analyze each topic under that objective which it most influenced.

All alternatives propose, among other things, the following major actions:

- The identification of **acceptable levels of visitation** over time could result in some visitor restrictions.
- The implementation of **management zoning** to provide for resource protection and preservation.
- **Inventory/monitoring of natural and cultural resources** to benefit all resources.
- Acquisition of a **conservation easement** to the north of the existing Schoodic parklands, to benefit natural resource conservation, particularly wildlife and vegetation.
- Preparation of the **NRHP nomination form** for the proposed Schoodic Peninsula Historic District, likely to benefit the region in minor to moderate ways.



- Implementation of **transit options** (buses, shuttles) and study of bicycle connections to benefit natural resources and cultural resources.
- Use of **Secretary of the Interior's Standards** for maintenance, preservation and rehabilitation activities to benefit cultural resources.
- **Universal accessibility** would be provided to all structures proposed for visitor use, a benefit to the visitor experience.
- **Use/storage of hazardous materials** would be reduced on former base.
- **Revegetation of social trails** on Little Moose Island.
- **Maintenance of mutual aid agreements** with local communities for medical emergencies and fire protection.
- Preservation and maintenance of Schoodic's **night sky and natural soundscape**.

As each of these actions, regardless of alternative, would result in identical contributions to the accomplishment of Section 101 objectives, they are not used in the ultimate evaluation of the environmentally preferred alternative.

## **SECTION 101 CRITERIA/OBJECTIVES**

The following summarizes the evaluation of how effectively the alternatives meet the six objectives of Section 101. As stated in Section 101(b) of the National Environmental Policy Act, federal agencies are required to, to the greatest practicable means:

### **1. Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations.**

The Schoodic District contains unique and varied natural resources which remain relatively unimpacted when compared to other parts of Acadia National Park. The area contains two state-designated "Rare or Exemplary Natural Communities" (Jack Pine

Woodland and Maritime Shrubland) and one designation of "Significant Wildlife Habitat" (migratory shorebird staging area, seabird nesting, tidal waterfowl and wading bird areas, and bald-eagle nesting sites).

Issues relevant to this objective include wastewater discharged to Arey Cove, drinking water demand, soil erosion, reduction of vehicular traffic and effects on vegetation, wildlife and coastal resources. The No Action Alternative would result in somewhat greater benefits for water resources (less wastewater discharge and potential to degrade surface water quality), air quality (fewer emissions), wildlife (less general use/habitat impact), and coastal resources (less use of sensitive intertidal areas) than would implementation of the other two proposals. These benefits are primarily realized through the minor increase in numbers of visitors and vehicles to the Schoodic District, including the base, when compared to Alternatives B and C.

### **2. Assure for all Americans, safe, healthful, productive, and aesthetically and culturally pleasing surroundings.**

Each alternative has been designed to provide safe and healthful surroundings for visitors and staff. Most of the issues that address this objective fall under actions common to all alternatives resulting in identical contributions toward the objective. However, aesthetically and culturally pleasing surroundings are provided to varying degrees under the three alternatives. Issues involved in the assessment of how adequately this objective is met under the three proposals are visitor experience, perceptions of crowding and quiet enjoyment, visual quality, night sky, and the natural soundscape. As actions related to the latter two issues are common to all alternatives, they are not discussed again here.

From a recent visitor study (Manning et al. 2002), it was determined that visitors to the Schoodic District benefit from a variety of experiences, with the most highly rated activity being the enjoyment of the natural scenic beauty. Positive qualities cited by visitors were the pristine natural beauty and scenery,

the quiet atmosphere, and the low level of visitation. Visitors using the Schoodic District expect it to be more peaceful, and less crowded than the Mount Desert Island portion of the park. While most visitors do not believe improvements are necessary at this time, a few mentioned litter, trail erosion, crowding, and traffic as problems. The study also showed that while visitors may prefer a smaller number of vehicles and visitors in the park, they believed higher numbers should be allowed by NPS (please refer to Part Three: Visitor Experience for more details).

Visitor impacts perceived as being caused by increased traffic and visitors would be minimized under the No Action Alternative when compared to increased numbers proposed under Alternatives B and C. As a result, the No Action Alternative is more beneficial regarding perceptions of crowding and quiet enjoyment of the park area than the other two proposals. While the No Action Alternative would result in a much smaller human presence and a quieter, more peaceful visitor experience, it should be reiterated that many believe additional users as proposed under Alternatives B and C are acceptable.

Visual impacts on the Schoodic cultural landscape toward and from the former base are improved under Alternatives B and C when compared to No Action in their potential to provide esthetically and culturally pleasing surroundings (e.g., structure removal, vegetation restoration, use of design guidelines). Major benefits are realized under Alternatives B and C through the creation of a more campus-like and natural feel to the base area, as well as improved base parking and circulation designed to be more pedestrian-friendly. No such benefits are realized under No Action, which proposes negligible use of the base and a situation where many sound buildings would begin to deteriorate due to minimal maintenance.

Each of the three alternatives would contribute to a similar degree to consistency with this objective. The No Action Alternative contributes primarily through its effect on perceptions of crowding (lack of) and quiet enjoyment of the park. The other two alter-

natives contribute primarily through improvements made to the base and its effects on the cultural landscape and visitor use.

### **3. Attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences.**

Only those uses that would not result in environmental degradation or undesirable consequences are included in the evaluation of how the alternatives fulfill this objective. Relevant topics include actions proposed under all alternatives (see above), including transit options, a conservation easement, inventory/monitoring of natural and cultural resources, management zoning, acceptable visitor levels, and social trail revegetation. As the proposed actions are common to all alternatives, no variation exists among them regarding their potential to contribute positively to the objective.

### **4. Preserve important historic, cultural, and natural aspects of our national heritage; and maintain, wherever possible, an environment which supports diversity, and variety of individual choice.**

Issues relevant to the accomplishment of this objective include cultural resources, visitor educational materials, the development of educational opportunities (SERC), and reuse of base structures.

The Schoodic District contains a remarkable number of cultural resources, most of which retain a significant degree of integrity. In particular, much of the peninsula encompasses a cultural landscape proposed for nomination to the National Register of Historic Places as a district. The preservation of the cultural landscape is of great interest to park staff and visitors. Levels of impact to this resource vary among alternatives, with the least impact anticipated under the No Action Alternative. Minor to moderate impacts to the cultural landscape of the Schoodic Peninsula, particularly to the Schoodic Loop Road, are expected under both Alternatives B and C. Higher levels of adverse effects are antici-

pated under Alternative C due to the higher numbers of visitors expected. However, under both Alternatives B and C, measures which have the potential to mitigate impacts are also proposed (limiting parking, transit options, etc.), though they would still result in greater impacts than would the No Action Alternative.

The rehabilitation and reuse of the Rockefeller Building and powerhouse would be beneficial under Alternatives B and C, allowing for numerous visitors to experience the NRHP-eligible structure. Maintenance and preservation of the structure is proposed under the No Action Alternative; however, very few visitors would have the opportunity to enjoy the structure under this proposal. The use of the base as the focus for educational offerings (SERC) will contribute to the preservation of the area's historic context, as well as providing diversity and variety of individual choice for visitor activities. The greatest benefits are provided under Alternative C which proposes the largest visitor presence on base, the greatest variety of educational opportunities, and greatest reuse of base structures. Alternative B provides similar benefits to a lesser degree (smaller number of visitors, fewer educational offerings, and reuse of fewer base buildings). The No Action alternative provides negligible benefits in this regard due to its nominal educational offerings and minimal base use. The increase in visitor educational and interpretive information proposed under Alternatives B and C would result in benefits to cultural and natural resources by providing information regarding conservation, preservation, and historic context. Very little new visitor information would be provided under the No Action Alternative.

Alternatives B and C offer notable benefits toward the accomplishment of this objective, with Alternative C providing slightly higher benefits. These result primarily from enhanced educational offerings (SERC), increased visitor information, and the rehabilitation and reuse of the Rockefeller Building and other base structures. The No Action Alternative offers fewer benefits related to this objective; however, it provides the most significant benefit to the preservation of the Schoodic Peninsula cultural landscape.

## **5. Achieve a balance between population and resource use which will permit high standards of living and a wide sharing of life's amenities.**

This objective refers to a balance between resource use and preservation. Socioeconomic and recreational topics are considered relevant to the accomplishment of this objective. Recreational topics include hiking, scenic driving, and quiet enjoyment of the park area. As the latter two have been previously addressed under another objective, only hiking is evaluated here.

The socioeconomic climate anticipated varies under the three proposals. Unrelated to the effects of the *Draft General Management Plan Amendment*, the socioeconomic state of Hancock County was significantly impacted with the departure of the Navy in 2001. Prior to this closure, the County's economy was focused on the service and self-employed sectors. Today, the economy of Winter Harbor–Gouldsboro is focused on fishing and logging, as well as the resort economy, seasonal homeowners, and retirees. The navy base closure resulted in significant adverse impacts to spending, jobs, personal income, community infrastructure, housing, schools, and the social fabric of the region.

All alternatives anticipate small visitor increases to the study area unrelated to the proposed use of the base for education and research (SERC). These increases would result in negligible to minor benefits to the local economy. However, the proposed educational programming varies among the three alternatives, resulting in significant differences in the potential to influence the socioeconomic state of the area.

Under the No Action Alternative, very few program opportunities/participants and staff are anticipated to participate in educational offerings at the base. With fewer visitors/staff expected on Schoodic parklands, the local economy will continue to experience the significant adverse impacts created as a result of the base closure in 2001. Alternative C proposes the highest number of SERC program participants and staff, which is expected to result in minor socioeconomic benefits to the area. While Alternative B, a

mid-range proposal with fewer program participants and staff than Alternative C, would result in adverse impacts, it would go further in reversing socioeconomic losses experienced with the base's closure than would the No Action Alternative.

The implementation of a comprehensive trail system proposed under Alternatives B and C would provide a balance between users and resources in its ability to direct visitors away from sensitive cultural and natural resources areas and to discourage off-trail use, regardless of the increase in visitors to the area. These benefits are not realized under the No Action Alternative. In addition, with the base remaining closed to the majority of visitors under the No Action Alternative, access to trails linking the shoreline of Big Moose Island with the base would be limited. Alternative C is believed to best accomplish this objective, primarily due to its combined beneficial effects on the local socioeconomic climate and the implementation of a comprehensive trail system. Alternative B offers similar benefits, only slightly lower due to the decreased socioeconomic effect of fewer program participants. The No Action Alternative is anticipated to have very little effect on the socioeconomic climate of the area. In addition, its less comprehensive approach to the Schoodic hiking trails jeopardizes resources which exist along these facilities to a greater degree than do the other two proposals.

#### **6. Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.**

The proposed energy audits of base structures, conversion of electric heat to more sustainable fuel sources, ground water recharge, and use of design criteria/guidelines are relevant issues for the fulfillment of this objective. Reduction in vehicular use/emissions, related to the energy conservation focus of this objective, has been previously addressed in its relationship to air quality (Objective 1) and is not further discussed here.

Alternatives B and C propose the use of numerous base structures, with the highest use proposed under Alternative C. All such

facilities would undergo energy audits and be modified to maximize energy efficiency according to Design Guidelines for Schoodic Education Research Center (see Appendix E). Under both alternatives, buildings reused would be those that are deemed operationally efficient and environmentally and economically sustainable. Where possible, electric heat will be converted to a more sustainable energy source. In contrast, the No Action Alternative proposes little use of the base facilities and, therefore, would not contribute in a similar way to the fulfillment of this objective. Although the No Action Alternative would result in most of the buildings being boarded up and not used, which would result in a reduction in the amount of heating fuel used on base, these sound structures would not be used, resulting in negligible benefits to this objective.

Ground water recharge will be improved as a result of asphalt and structure removal under both Alternatives B and C, with Alternative B providing a greater contribution (larger area of impermeable surface removal). The No Action Alternative proposes no impermeable surface removal and, therefore, does not contribute in a similar manner to the objective. Due to the proposed reuse of the highest number of base structures, which could result in the greatest use of operationally efficient and environmentally and economically sustainable structures, Alternative C is believed to best accomplish this objective. Alternative B offers only slightly fewer benefits. The No Action Alternative does not contribute in the same way to the objective.

#### **SUMMARY CONCLUSION**

Information gleaned from a recent visitor study (Manning et al. 2002) was used to help determine which historic, cultural, and natural resources were most important to Schoodic users. NPS management goals for Schoodic of low-density recreation, preservation of naturalness and solitude, and establishment of a research/learning center have already been endorsed by the public, and so are assumed to carry weight in the distinction between alternatives.

The less-intense use of the Schoodic District proposed under the No Action Alternative would somewhat benefit natural resources when compared to the other two proposals, particularly air quality, water resources, coastal resources, and wildlife. The cultural landscape of Schoodic, however, might suffer from lack of maintenance now that the Navy is no longer present to help. The addition of partners in the Collaborative Partnership Alternative would expand capacities for maintenance.

Both Alternatives B and C would have different, but valued positive effects by providing enhanced visitor information, completing a comprehensive hiking trail system, offering a variety of educational and research opportunities on base, and through the rehabilitation and reuse of base structures, including the NRHP-

eligible Rockefeller Building. The former base appearance would be positively affected under Alternatives B and C by the creation of a more natural setting, thereby decreasing visual impacts to the peninsula's cultural landscape. The socioeconomic climate of the area, as well as the potential to enhance the use of renewable resources and recycling, would both be improved under Alternatives B and C.

Because Alternative B (National Park Service Management) and Alternative C (Collaborative Management) best protect resources, cause the least damage to physical and natural resources, and appear to be most consistent with visitor and community input received to date, they are identified as the environmentally preferred choices.

## PART THREE: AFFECTED ENVIRONMENT

This section describes the resources that could or would be changed under the alternatives. The environmental issues or problems that could occur under any of the alternatives are stated at the beginning of each subsection.

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### NATURAL RESOURCES

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#### **AIR QUALITY**

##### **Issues Associated with Air Quality**

- Changes in the number of people or the distribution of visitors to the Schoodic Education and Research Center (SERC) may result in differences in the concentrations of air pollutants associated with automobile or bus traffic. These include nitrous oxide, hydrocarbons, carbon monoxide, and carbon dioxide, some of which are precursors to ozone and/or contribute to changes in visibility and acid precipitation.
- Building removal and construction work on existing buildings may require grading, digging, or other actions that could cause temporary dust or larger particulates.
- The base operated several generators for which it had air quality permits. Continued operation of these generators would result in emissions associated with diesel engines, including those listed above.
- Radon, a human carcinogen, is naturally occurring in the granite bedrock underlying the peninsula. Indoor air may need to be tested and mitigation measures installed in buildings occupied by park staff, students, visitors or lessees to prevent exposure to unsafe levels.
- Asbestos, also a known human carcinogen when inhaled, is present in the building materials used to construct some of the buildings on the base.

##### **Air Quality in the Study Area**

Acadia National Park is one of 48 units of the National Park System designated as a mandatory Class I area, defined by Congress as any national

park unit over 6,000 acres and its additions established by August 1977. These areas are afforded the greatest degree of air quality protection under the Clean Air Act, and the National Park Service (NPS) is required to do all it can to ensure that air quality-related values (including flora, fauna, soil, water and visibility) are not adversely affected by air pollutants. To this end, NPS reviews any permit applications for industrial or other facilities that wish to locate or expand nearby and that may contribute to the deterioration of the air shed.

**Visibility** - Visibility is affected by very fine particulates, organics, and aerosols of nitrates and sulfates. Regional haze from the midwestern United States is the primary source of visibility problems at the park (NPS 2001 Joseph memo). Reductions in visibility affect both how far visitors can see from a particular viewpoint as well as the clarity of the view itself. Monitoring shows that sulfate is the largest contributor to reductions in visibility at Schoodic, and accounts for 62% of light extinction (i.e., the point at which light can no longer be seen because of fog, clouds, smoke, air pollution, etc.). Visibility at Schoodic is generally best in the fall and worst in the summer months.

Despite a statistically significant improvement in sulfate concentrations in precipitation at the park in recent years, visibility on good days (the best 10% of the year) and average days has improved only slightly. Monitoring from 1990 through 1999 shows an improving trend in days with poor visibility (the worst 10%), although the data indicate that the trend is not statistically significant.

**Mobile Sources** - Automobiles use internal-combustion engines for the most part. These engines produce the pollutants nitrous oxide, hydrocarbons, carbon monoxide, and carbon dioxide, some of which are precursors to ozone and/or contribute to changes in visibility and acid precipitation. While the number of visitors shows a high degree of seasonal fluctuation, a recent traffic study estimated that in 2000, an average of 800 cars per day travel the 1-mile Moore Road leading from State Route 186 into the park, continue on around the 6-mile Schoodic Loop Road, and exit back to State

**TABLE 3. TOTAL 1998 EMISSIONS FOR NAVAL SECURITY GROUP ACTIVITY WINTER HARBOR**

(Source: NSGA 2000)

Pollutant	1998 Emissions (tons/yr.)	License Allowable (tons/yr.)
SOx (sulfur dioxide)	8.26	14.65
NOx (nitrogen oxides)	11.43	50.3
CO (carbon monoxide)	2.03	10.3
PM10 (particulates smaller than 10 microns)	3.0	12.8
VOC (volatile organic compounds—hydrocarbons)	0.48	2.8

Route 186 via the 1.9-mile Wonsqueak Road out of the park. Assuming the national average for vehicle emission rates (U.S. Department of Transportation 2002), these cars add about 6.5 tons of hydrocarbons, 58 tons of carbon monoxide, and 4 tons of nitrogen oxides each year to the immediate vicinity of the Schoodic Peninsula.

**Stationary Sources** - The U.S. Navy conducted activities at its Schoodic and Corea sites that contributed to emissions, including painting, incinerating solid waste, using solvents and degreasers, dispensing and storing gasoline, operating boilers for building heat, and running diesel generators. The primary sources of emissions were the emergency generators at the Corea site, which is located about five miles east of the Schoodic District. The total emissions from all activities at the Naval Security Group Activity Winter Harbor are listed in Table 3.

**Ozone** - Some of the pollutants emitted from cars, such as hydrocarbons and nitrogen oxides, can contribute to ground-level ozone or "smog." In addition, the precursors to ozone are emitted from industrial and other stationary sources to the south and west of the park, and are carried to the park via long-range transport. The pollutants emitted on a given day from the Philadelphia–New York City–Boston region often do not reach the park until between 6:00 p.m. and midnight, a time which often corresponds to maximum daily ozone levels at Acadia National Park. Ozone in the park has been monitored since 1982. In the summer, ozone concentrations periodically reach 85 parts per billion (ppb) or greater (NPS 2001). This is typical of most areas along the Maine coast, but is among the highest in the eastern U.S. Ozone

concentrations are worst in the summer, and the Environmental Protection Agency standard for an 8-hour average ozone concentration (80 ppb) was exceeded in the park five times in 1997, eight times in 1998, six times in 1999, three times in 2000, and ten times in 2001. While peak concentrations can periodically be high for a few hours, the average daily levels are usually 35–40 ppb and well within the "good" range on the ozone health index. Cumulative seasonal ozone concentrations are relatively low, and the park has shown an improvement in daily maximum ozone levels over the years 1990–1999. Research conducted by the park indicates some particularly sensitive vegetation (such as broad-leaf aster, quaking aspen, and jack pine) may experience injury at typical ambient ozone concentrations found at Acadia National Park (NPS 2001).

**Acid Precipitation** - Rain, snow, or fog can be acidified through chemical reactions in the atmosphere involving sulfur dioxide and nitrogen oxides. These gases are emitted from the burning of petroleum products from both stationary and mobile sources. Although mobile sources in the vicinity of the park may contribute a minor amount of sulfur dioxide or nitrogen oxides, by far the largest contributors come from industrial and urban sources upwind of the park. Based on National Atmospheric Deposition Program (NADP) modeling, pH in rain and snow at the park has averaged 4.5 since 1982, with a range of 3.2–7.0 (NPS 2001). Unpolluted precipitation has a slightly acid pH of about 5.6 (Schindler 1988). Since 1990, there has been a significant reduction in sulfate deposition (largely due to emissions controls required by Clean Air Act amendments), and a slight improvement in nitrate concentrations. Testing

**TABLE 4. FORMER NAVY BUILDINGS WITH GREATER THAN 1% ASBESTOS**

(Source: NSGA 2000)

Building No.	Building Name	Risk Assessment Code
1	Rockefeller	3
3	Chapel	3-4
9	Gate House	4
10	Administration	3-4
39	Commissary	4
45	Generator House	4
105	Galley	4
137	Transportation/Fire House	4
138	Gymnasium	3-4
143	Schooner Club	4
148	Medical Clinic	4
164	Child Development Center	4
165	Gas Station	4
184-191	Schoodic Shores Housing	4
223	Storage	3

of lakes, ponds, and streams in the park show that most are non-acidic, although some short-term acidification occurs during spring melt or during high periods of runoff (NPS 2001). Fog, which is not measured by the NADP, tends to be more acidic than rain or snow, and may be a major source of acidity to park vegetation (NPS 1999a).

**Mercury** - Elevated mercury concentrations in freshwater fish throughout Maine have led to statewide consumption advisories and research into the source of the problem and its ecological impacts on park resources. The source is most likely atmospheric and originating some distance from the park. No activities proposed in any of the alternatives would affect mercury levels; it is mentioned only to understand cumulative impacts to the air quality at Schoodic.

**Indoor Air Quality** - Radon is naturally occurring in the bedrock underlying Schoodic. In late 1994, the U.S. Navy tested radon levels in several of the housing structures at the base and found levels higher than the Environmental Protection Agency recommended action guideline of 4.0 picocuries/liter (pCi/l) in buildings 84, 184-186, 191. Radon mitigation systems were installed in these units, and indoor air quality was subsequently measured from 12/08/97 to 6/24/98. Results indicated the mitigation was successful

in lowering radon levels to well below the Environmental Protection Agency standard. All results were in the range of 1.2-1.9 pCi/l (NSGA 2000).

A 1992 survey found several buildings containing more than 1% asbestos. Most were classified as posing a risk of 3 or 4 on a scale of 4 to 1, with 1 posing the highest risk. Some posed a higher risk, and the U.S. Navy removed asbestos in buildings 39, 138, and 148 before turning the base over to the National Park Service. Buildings posing a risk of 3 or 4 will be monitored and the risk managed, but asbestos will not be removed unless disturbed by rehabilitation or other activities (Table 4).

## **WATER RESOURCES**

### **Issues Associated with Water Resources**

- Reuse of the navy base could result in changes in the demand for water or in the amount of wastewater treated and discharged by the park; continued effluent discharge from the wastewater treatment plant at the former navy base into Arey Cove may create long-term water quality problems and impact the intertidal zone of the cove.



- Increased exploration of the base and peninsula by students and visitors could result in damage to the hydrologic characteristics, water quality, or riparian vegetation of ephemeral or perennial streams or watersheds.
- Activities associated with building removal could result in damage to streams or riparian areas.

#### **Water Resources in the Study Area**

**Water and Wastewater** - Water is currently supplied to base personnel from a 150-foot well at Schoodic Head. The well is sized to produce 140,000 gallons per day and service up to 500 people. Sodium hypochlorite is added at the water treatment plant to disinfect it before pumping it to a 150,000-gallon water tower for storage. Treatment problems include the presence of radon, which is naturally occurring in groundwater in the area, and the leaching of metals such as lead and copper from the water distribution system at the base. Radon is treated with a bubbler/stripper effective enough to reduce levels averaging 7,000pCi/L to near zero. The likelihood of stripping of metals from water pipes is lessened by adding a chemical (zinc orthophosphate) at the water treatment plant which inhibits corrosion.

The wastewater treatment plant was constructed in 1980. The plant is sized at about 65,000 gallons per day, but is designed to handle a maximum flow of 45,000 gallons under normal conditions. Wastewater is collected not only from all occupied buildings, but from miscellaneous floor drains and oil/water separators, as well. Wastewater receives standard secondary treatment, including biological contact, clarification, aeration, and chlorination. Under a Maine Department of Environmental Protection permit, effluent is discharged into Arey Cove between the east coast of Big Moose Island and the west shore of Little Moose Island. Solids that settle during the wastewater treatment process are currently treated in an outdoor reed bed. In other areas along the New England coast, discharge from septic systems or wastewater treatment plants have resulted in increased nitrogen discharge to coastal waters, with resulting algal blooms, periphytic algae, and declines in eelgrass abundance (NPS 1999a).

Storm water is collected and drains directly into the Atlantic Ocean.

**Streams and Hydrology** - Most of the park's drainages are small, short, and steep. The average distance between headwaters and stream outflow to the ocean is 3 miles (NPS 1999a). The Schoodic Peninsula has few streams and no defined hydrologic sub-basins. A year-round stream, Frazer Creek, drains into Mosquito Harbor at the entrance to the Schoodic District. While no perennial surface streams exist on Big Moose Island, seeps, springs, and artesian springs are present and contribute to the wet forests in some parts of the property. Soils are generally thin and poor at holding moisture, so runoff following storms occurs quickly and does not last long. Frequent sea fogs help to maintain water levels for much of the year, but stream flows are low during late summer and early fall.

Soils are also poorly buffered and acidic in nature. Rain and snow become weakly acidic during runoff, and can contribute to the acidity of streams, ponds, and lakes. The low buffering ability means surface waters in the park are less able to neutralize acids leached from the soil or deposited from atmospheric sources. Seasonal upland streams are particularly vulnerable to episodes of acidification during runoff from storms or snowmelt (NPS 1999a). The park's freshwater resources tend to be nutrient poor, unproductive, and highly transparent.

**Groundwater** - Groundwater occurs in surface deposits and in cracks and joints in bedrock at the park. Yields from wells installed on the surface deposits, such as in glacial till, fluvial deposits or alluvium, tend to be low and on the order of 0-10 gallons per minute (gpm).

Although the yield from groundwater in bedrock varies, it tends to be much higher, and in the range of 0.5-100 gpm, with an average of 10 gpm. The well supplying the base produces 100 gpm. Groundwater quality tends to be generally good and of sufficient quality for domestic use.

## **SOILS**

### **Issues Associated with Soils**

- Activities associated with the reuse of the navy base could result in the removal, compaction, or other changes to soils in previously undisturbed areas.
- Reuse of the navy base creates the potential for soil contamination through spills, leaking of gasoline or fuel oil, and other unintended releases.
- Development and other human activities are limited by thin soils in the region.

### **Soils in the Study Area**

Soils on the Schoodic Peninsula are a function of the area's geology and vegetation. Some of the rocks in the park are ancient schists more than 500 million years old. These have been eroded, covered by the ocean, and buried with accumulated sand and mud which in turn formed sandstone and shale. Over many millions of years beginning about 420 million years ago, molten granite intruded, and the overlying rock was weathered away. Today, the granite is exposed or covered with a thin soil, and is the bedrock underlying most of the park. Subsequent intrusive activity injected diabase into the granites—these are the "dikes" or veins of dark rock, found at Schoodic Point.

Many types of granites have been mapped at the park. While Mount Desert Island is primarily underlain by a pink coarse-grained type, Schoodic bedrock is finer-grained granite, which is highly chemically resistant. This resistance, which causes rapid runoff, means most surface water in the park has low alkalinity and low nutrient concentrations.

For the most part, soils in the park are relatively young. This is primarily due to the scouring of a series of glaciers, with the most recent beginning its retreat about 14,000 years ago. The glaciers left behind extensive areas of bare rock, and a thin veneer (6–20 inches) of surficial glacial/soil material on the park's upland areas, ridges, and along much of the shoreline. The surface soil is gravelly, fine sandy loam that is easily blown away if it is exposed.

Naskeag soils are found in depressions between shallow ridges in wet areas. They are moderately deep, usually level or gently sloping and poorly drained. The surface is fine sandy loam and gravelly loamy sand. The top layer of soils forms slowly as the fallen needles of dominant vegetation, spruce and fir, are difficult for microorganisms to break down. Soils tend to be acidic, and are characterized by accumulated iron, aluminum, and organic matter.

Soils have been excavated and manipulated to accommodate the development and operation of the navy base, including the construction of buildings, roads, antennas, recreational facilities, and other infrastructure. All together, this development has probably removed or disturbed 80–100 acres of soil during the 67 years of the U.S. Navy's use of the site. The U.S. Navy has classified most of the soils at the base as "2d," that is, they pose a slight erosion hazard and moderate constraint on the use of heavy equipment. Trees growing on these soils may be exposed to winds, and have a moderate likelihood of uprooting from wind. Some soils near the northern central part of the base are classed "2x," which is similar to 2d except equipment limitations are slight. Other soils on the base are considered "excessively thin," and unable to support most vegetation (NFAC 1987).

The U.S. Navy has used hazardous fuels and chemicals at the base and has had some spills and leaks associated with underground storage tanks. In 1993, the U.S. Navy moved six underground storage tanks and filled a seventh tank in place. The leaking tanks had contaminated about 450 cubic yards up to 14 feet below ground with gasoline. A non-point source located well down-gradient from the spill was found to contain very small amounts of MTBE, a fuel additive. Because MTBE levels were lower than those determined by the Maine Department of Environmental Protection remediation standards, no action was taken. The base has 11 underground fuel storage tanks and 20 above-ground tanks. Most have been replaced in the last decade, and all are double-walled tanks (NSGA 2000).

Several small spills of petroleum products (fuel oil, gasoline, diesel fuel, etc.) have been documented, most in the 1–5 gallon range and all less

than 25 gallons. Between 1994 and 1998, 14 such spills were recorded. Soils on site also contain abandoned underground coaxial antenna cable. The U.S. Navy removed approximately 5,000 feet of the cable in 2002, but thousands of feet are likely to remain just below the surface. Soils also contain buried pressurized cylinders and possibly a landfill at the ball field consisting of construction and demolition debris (sections of brick walls, pieces of concrete, and metal pipes and wire) that do not constitute an environmental hazard (Weston 2002).

The base also had short-term storage facilities on site for other hazardous waste, such as medical waste, maintenance chemicals, etc., which is kept for up to 90 days before it is removed to a licensed hazardous waste facility. No spills or accidents involving these wastes have been reported.

## **VEGETATION**

### **Issues Associated with Vegetation**

- Activities associated with the removal and reuse of the buildings could adversely affect wetland values.
- Vegetation may be removed, thinned, or replaced with landscaping to create a more campus-like feel at the former navy base.
- Removal of some of the existing buildings in the study area, and in particular on the base, could create suitable conditions for regrowth of vegetation.
- Increased exploration by students or visitors of fragile or rare vegetative communities, such as riparian areas, unusual woodlands, or habitat of rare plants, could result in impacts to soils, hydrology, or the plants themselves from trampling, collecting specimens, sliding soils, etc.

### **Vegetation in the Study Area**

The park lies in a broad transition zone between southern deciduous and northern coniferous forests, and so has several plant species and vegetative communities which are existing at the northern or southern edge of their range. This also makes for a more diverse flora than areas to the north or south of this part of coastal Maine.

The Maine Natural Areas Program (MNAP), which is administered by the Maine Department of Conservation, offers a comprehensive source of information on the state's important natural features. MNAP collects, interprets, and disseminates information on rare or exemplary natural communities, and rare, threatened, and endangered plant species. MNAP has identified 144 natural communities in Maine.

The Schoodic District contains two state-designated "Rare or Exemplary Natural Communities": Jack Pine Woodland and Maritime Shrubland. The Jack Pine Woodland is located on the east slope of Schoodic Head and consists of approximately 100 acres, which is significantly larger than the average stand of 40 acres found in Maine. The Jack Pine Woodland is rare (20–100 occurrences) in Maine because the dominant tree species, jack pine (*Pinus banksiana*), is at the southeastern limit of its range.

The southern half of Little Moose Island contains an exemplary Maritime Shrubland community, which is a shrub-dominated habitat along seaside bluffs exposed to onshore winds and salt spray. Although MNAP describes the rarity of the Maritime Shrubland community in Maine as "apparently secure," two rare plants (i.e., marsh felwort and blinks) occur within the area designated on Little Moose Island.

**Upland Forests** - The most abundant vegetative community on the peninsula is the Maritime Spruce and Fir Forest, which exists on glacial till and exposed bedrock in locations exposed to cool coastal temperatures, higher humidity, and frequent fogs. The most common species is red spruce, and associated trees species include primarily balsam fir, paper birch, and white spruce. Some of the more common species in the understory include blueberry, mountain cranberry, mountain ash, starflower, Canada mayflower, bunchberry, and wild raisin. On islands in the study area, as well as at the navy base, white spruce occurs in higher percentages than red spruce (Mittelhauser et al. 1996, NFAC 1987). Coastal forests consisting primarily of white spruce are rare in Maine, and resemble full development of the boreal forest in north-west Canada (Drury 1980). For the most part, the herb and shrub layer in these forests is poorly developed, and it is mosses instead

which are abundant in the understory, especially where the microclimate is humid and cool.

Of note are a few small stands of Northern White Cedar Seepage Forest community on the northern side of Big Moose Island. These relatively rare forest communities are found on gentle slopes where the forest floor is saturated with cold groundwater (Maine Department of Conservation 1998). In some cases, this seepage of groundwater can form rivulets or small spring-fed brooks, or it may remain under the surface of a thick layer of peat mosses and shade-tolerant ferns. Twelve species were found in the understory of the cedar seepage forest stands on Big Moose Island, including starflower, sarsaparilla, and common currant. While 62% of the basal area of the forest is represented by mature northern white cedar, no seedlings of this species were recorded. Instead, thousands of red spruce seedlings were documented (Mittelhauser et al. 1995), indicating a change in the composition of these forests. The presence of old-growth cedar and spruce (180–200-year-old trees) indicate the stands of this species are particularly worthy of monitoring and protection from impact.

Mixed hardwood-conifer forests are also found in the study area, including one significant stand on Little Moose Island. This forest type is transitional between spruce/fir and northern hardwood forests. Common tree species include spruce, red maple, paper birch, balsam fir, northern red oak, and yellow birch. Understory includes shrubs of currants and blueberry, and is low in herbaceous material, but high in leaf litter (Glanz et al. 1999).

**Vascular Plants** - A two-year study of vascular plants of the Schoodic Peninsula reported 343 species, including 75 non-native species (Mittelhauser et al. 1995, Spencer-Famous and Perera 1999). These include 265 species on the Schoodic Peninsula, 136 species on Pond Island, 139 species on Schoodic Island, and 174 species on Little Moose Island (Rolling Island was not a part of the study) (Mittelhauser et al. 1996).

Although surveys in the mid-1990s found 75 species of non-native plants in the study area, none were considered common or aggressive enough to pose a significant threat to native plant species or plant communities (Mittelhauser et al. 1995). Purple loosestrife, an aggressive non-native species found in many wetlands in the eastern United States, has not been found in the Schoodic District.

As discussed above, the Maine Natural Areas Program (MNAP) collects, interprets, and disseminates information on rare, threatened, and endangered plant species. MNAP has documented five rare plant locations on the southern portion of the Schoodic Peninsula, including two on Little Moose Island (Table 5).

**Bryophytes** - Because bryophytes (i.e., mosses and similar vegetation) are often an integral part of the forest understory in this area, they have been surveyed on the peninsula, and results of the survey are summarized in this environmental impact statement. A recent survey (Spencer-Famous and Perera 1999a) found 131 bryophyte species in the study area. Of these, 81 were mosses. Most species were found in terrestrial communities and 65 were found only in these

**TABLE 5. PLANTS OF STATE CONCERN LOCATED WITHIN THE SCHOODIC DISTRICT**

(Source: Maine Natural Areas Program 2003)

Species	State Rank	State Status*	Proposed State Status**
Screwstem ( <i>Bartonia paniculata</i> )	S1	Endangered	Threatened
Marsh felwort ( <i>Lomatogonium rotatum</i> )	S2	None	Threatened
Blinks ( <i>Montia fontana</i> )	S2	None	Special Concern
Fragrant cliff wood-fern ( <i>Dryopteris fragrans</i> )	S3	None	Special Concern
Sea-beach sedge ( <i>Carex silicea</i> )	S3	None	Special Concern

\* based on 1988 data

\*\* based on current 1998 data

communities. Some were in both upland and wetland communities, and seven were found only in wetlands. Upland habitats where bryophytes were more common included vertical rock cliffs, spruce fir forests, upland shrubs and developed areas on filled wetland or upland. Palustrine (wet forests or shrublands) habitats included shrub swamps, spruce/fir swamps, and swales dominated by sedges and grasses. Bryophyte species were also common in the small, steep gradients associated with first order rocky streams in the study area.

Four bryophytes of special interest were found in the study area. *Isothecium eumyosuroides* is rare because it is only found in a specific type of habitat associated with a restricted maritime range. Two species, *Dicranum majus* and *Diplophyllum albicans*, are maritime species found at the southern limit of their range at Schoodic. *Sphagnum pylastii* exists in the spray zone, suggesting some tolerance of salinity, and is an extremely rare *sphagnum* species (Spencer-Famous and Perera 1999a).

**Freshwater Wetlands** - Wetlands provide an important habitat for a variety of wildlife, including amphibians, fish, and waterfowl. They also help improve water quality through pollution abatement, sediment removal, and chemical and nutrient absorption. Wetlands are classified into five major groups. Three of these are freshwater wetlands: palustrine (isolated wet areas, including marshes, swamps, and bogs), lacustrine (associated with lakes), and riverine (associated with rivers and streams). The other two types of wetland, marine and estuarine, are discussed in the "Coastal Resources" section. The Schoodic District does not contain lacustrine or riverine wetlands, but palustrine wetlands are common (Spencer-Famous and Perera 1999a, NPS 2002). Forested palustrine wetlands are the most abundant wetland class in the park and constitute the majority of the mapped wetlands. They are located along streams, in isolated depressions, and in conjunction with other types of wetlands. Forested palustrine wetlands can be dominated by hardwoods, evergreens (especially red spruce, black spruce or northern white cedar), or a mixture of the two.

## **COASTAL RESOURCES**

### **Issues Associated with Coastal Resources**

- Increased exploration of the shoreline by visitors could result in human-related impacts to intertidal plants and animals.

### **Coastal Resources in the Study Area**

The marine environment at the Schoodic District consists of the rocky intertidal zone and estuarine systems. The Schoodic Peninsula is bounded to the west by Frenchman Bay and to the east by the Gulf of Maine.

**Marine System** - The Gulf of Maine watershed encompasses 43,000 square miles of land in Maine, New Hampshire, and Massachusetts. Rivers in Maine alone add about 250 billion gallons of fresh water to the Gulf each year. The gulf is productive and contains large shoal areas where water is well mixed from tidal influences and ocean currents. The greatest productivity occurs in the summer over Georges Bank, where ocean depths are 9 feet or less in many places, and sunlight can easily penetrate (U.S. Fish and Wildlife Service 2001, NPS 2000). Many marine mammals inhabit waters off the Schoodic Peninsula, including harbor porpoise, minke whale, finback whale, and harbor seal.

**Rocky Intertidal Zone** - The intertidal zone is the stretch of coast that lies between high and low tide. The average tidal range at Schoodic is 8–12 feet (NPS 2000). At the high end of the intertidal zone, in an area covered only during the highest tides, barnacles, diatoms, and green algae are common. Slightly further down are brown algae, including bladderwrack and knotted wrack, which attach by root like holdfasts to the rocks. Many intertidal organisms occupy this rockweed zone. Tide pools occur throughout the intertidal zone's levels. In the high intertidal zone, spiral wrack (*Fucus spiralis*) and brown seaweed (*Fucus distichus*) are abundant at Schoodic. Beds of blue mussels, smooth periwinkle, and dog whelks are common especially in lower areas of the tidal zone. The low intertidal zone is dominated by red algae (e.g., Irish moss) and sea anemones, and the sub-tidal zone hosts many species of sponges, kelps, red algae, brown algae, worms, sea stars, urchins, and fish. Young lobsters grow in the kelp beds in the sub-tidal zone.

The cool climate and nutrient-rich waters of the Gulf of Maine, a relatively high tidal amplitude, and a rocky shoreline full of microhabitats have created an intertidal zone with diverse marine life. In some areas of coastal Maine, up to 40 species of invertebrates may occupy a particular location (Maine State Planning Office 1989). The rocky intertidal zone is divided into several subzones depending on the degree to which they are influenced by tidal waters. Factors that define subzones include wave energy and site exposure, tidal range, slope, and substrate texture. The highest zone is above the spray zone and constitutes the upland forest described above. However, at its very edge, nutrient-rich water can collect in rocky hollows and host green algae blooms, which die as the water dries. The spray zone is the transition between upland areas and the ocean. Only drought-tolerant species can survive here, and they must be able to withstand the force of wind, salt, surf, summer drying, and winter freezing. The most common organism in the spray zone is *Xanthoria*, a crusty yellow lichen (NPS 2000).

**Estuarine Systems** - Estuarine systems are defined as tidal rivers and adjacent wetlands that are inundated by seawater that is measurably diluted with fresh water from land drainage. Two notable estuarine systems are located in the study area. One is the remnant of a marsh that once separated Big Moose Island from the rest of the Schoodic Peninsula. When the Schoodic Loop Road was built in 1933-1935, a portion of this marsh was diked as a causeway to complete the road (Berger & Assoc., Inc. 1999). Now, brackish water wetlands sit both to the northwest and southeast of the road in West Pond and East Pond coves. A palustrine wetland lies along the road and between the two brackish coves (NPS 2002). A steep slope leads up from the wetland and separates it from Big Moose Island near the northeast boundary of the U.S. Navy's property on Big Moose Island (Berger & Assoc., Inc. 1999). Mosquito Harbor, which is fed by Frazer Creek, is also classified as an estuarine system (National Wetlands Inventory 2002). The majority of this cove is a marine subtidal environment and remains submerged even at low tide. The perimeter of the cove is an intertidal mud flat, which is occasionally used for clamming and possibly for collecting marine worms (G. Mittelhauser, personal communication, September 2002).

## **WILDLIFE**

### **Issues Associated with Wildlife**

- Frequency and duration of disturbance by visitors could impact wildlife in habitat that is now experiencing little or no human presence.
- Visitors could trample vegetation or otherwise degrade habitat for wildlife.
- Research on wildlife may disturb or displace species and degrade habitat during exploration.
- Noise associated with construction may disturb and temporarily displace wildlife within hearing distance.
- Removal of some unused buildings at the base and restoration of habitat may result in the reoccupation of these areas by wildlife.

### **Wildlife in the Study Area**

Prior to 1994, information on even the basic biological resources at Schoodic was scarce. A preliminary inventory of plants and animals on the peninsula was started in 1994 and continued through 1996 (Mittelhauser et al. 1995, Mittelhauser et al. 1996). This work coincided with similar inventorying on the park's small islands, including three of the four in the study area (Rolling Island was privately owned at the time and not included in the study). The studies identified several species of concern (e.g., bats, birds, and small mammals) that use the Schoodic Peninsula during migration and the summer. Importantly, no state or federally threatened or endangered amphibians, reptiles, or mammals were found to inhabit the Schoodic Peninsula based on these studies.

Maine's Endangered Species Act (1975) includes provisions to protect "Essential Wildlife Habitat," which are areas that currently or historically provide physical or biological features essential to the conservation of state endangered or threatened species. According to the Maine Department of Inland Fisheries and Wildlife, these areas may require special management considerations to perpetuate conditions that are favorable to endangered or threatened species. The state designated "Essential Wildlife Habitat" in the Schoodic District recognizes the importance of Schoodic and Rolling islands as bald eagle nesting sites.

Maine's Natural Resources Protection Act (1998) includes provisions to protect "Significant Wildlife Habitat," which are areas designated to prevent further degradation or destruction of certain natural resources of state significance. The "Significant Wildlife Habitats" in the Schoodic District include migratory shorebird staging (i.e., feeding and roosting) areas; seabird nesting islands with 25 or more nests, or with one or more seabirds that is a state endangered or threatened species; and tidal waterfowl and wading bird areas (e.g., emergent wetlands, mudflats, and eelgrass beds) used for breeding, feeding, and roosting (Table 6).

**Invertebrates** - Invertebrates can be important for several reasons, including their position as an essential part of both the upland and aquatic food chain. They are also responsible for the release of nutrients through decomposition. Mites are particularly important in this regard in evergreen forests such as those that cover much of the study area. Springtails, beetles, fly larvae, sow bugs, snails, and slugs are other abundant invertebrates that live in forest soils.

Aquatic invertebrates of note in the park include dragonflies, damselflies, and mayflies; the latter is important because mayflies are sensitive to low pH and can be used to monitor changes in water quality. Freshwater rotifers have been thoroughly inventoried on Mount Desert Island, and researchers have found 449 species of rotifera in the park. Freshwater mussel species, including some that are rare enough to qualify for listing as threatened or

endangered, may also live in the park, but have not been inventoried (NPS 1999a).

A number of invertebrate species are of concern because they may disrupt natural systems, destroy park buildings or artifacts, or affect human health. Many—but not all—are non-native species. Forest pests that NPS has monitored or managed include gypsy moth, hemlock looper, spruce budworm, spruce bark beetle, and hemlock wooly adelgid. Other common insect pests include carpenter ants, yellowjackets, and wasps. The NPS usually does not treat native insects unless they threaten the mission of the park or present a significant human health or safety risk. In most cases, native pests and their hosts evolved together; these insects are considered an important part of the natural environment.

When pest treatment is necessary, integrated pest management (IPM) is used to address pest management issues. This approach is based on a thorough knowledge of the biology of the pest species and seeks to minimize chemical means of control. IPM includes setting an injury threshold for treatment, monitoring population levels of the pest, using preventative strategies and alternative treatments, evaluating the effectiveness of treatments, and good record keeping.

Some native invertebrate species not actively managed by NPS are considered pests outside the park boundaries when they interfere with land management objectives of private landowners or other governmental agencies. Managing

**TABLE 6. WILDLIFE HABITATS OF STATE CONCERN LOCATED WITHIN AND BORDERING THE SCHOODIC DISTRICT**

(Source: Maine Natural Areas Program 2003)

Area	State Designation	Habitat Type
East Pond	Significant Wildlife Habitat	Shorebird, Tidal Waterfowl/Wading Bird
Frazer Creek	Significant Wildlife Habitat	Shorebird, Tidal Waterfowl/Wading Bird
Rolling Island	Essential Wildlife Habitat	Bald Eagle
	Significant Wildlife Habitat	Tidal Waterfowl/Wading Bird
Schoodic Point	Essential Wildlife Habitat	Bald Eagle
	Significant Wildlife Habitat	Shorebird, Tidal Waterfowl/Wading Bird, Seabird Nesting
Schoodic Point	Significant Wildlife Habitat	Shorebird, Tidal Waterfowl/Wading Bird
West Pond	Significant Wildlife Habitat	Shorebird, Tidal Waterfowl/Wading Bird

**TABLE 7. AMPHIBIANS AND REPTILES FOUND ON THE SCHOODIC PENINSULA**

(Sources: Mittelhauser et al. 1996, Glanz and Connery 1999)

Species	Big Moose Island	Schoodic Peninsula
Spotted salamander ( <i>Ambystoma maculatum</i> )	X	X
Red spotted newt ( <i>Notophthalmus viridescens</i> )		X
Redback salamander ( <i>Plethodon cinereus</i> )	X	X
Spring peeper ( <i>Pseudacris crucifer</i> )	X	X
Green frog ( <i>Rana clamitans</i> )	X	X
Wood frog ( <i>Rana sylvatica</i> )	X	X
Smooth green snake ( <i>Opheodrys vernalis</i> )		X
Eastern garter snake ( <i>Thamnophis sirtalis</i> )	X	X

for different objectives may create conflicts between the park and its neighbors. The NPS attempts to work with neighbors to help resolve pest issues in a way that addresses local concerns while still protecting park values.

**Amphibians and Reptiles** - Eight species of amphibians and reptiles have been found at Schoodic (Table 7). These species are common in Maine coastal habitat and associated with freshwater wetlands.

Redback salamanders and common garter snakes were also found on Little Moose and Schoodic islands. Some garter snakes found on Schoodic Island showed characteristics of a maritime subspecies. No reptiles or amphibians were found on Pond Island (Mittelhauser et al. 1996).

**Birds** - As with plants, some birds occur at their southern range limit in the vicinity of Acadia National Park. For example, the Schoodic Peninsula is home to boreal species like black-poll warbler, boreal chickadee, spruce grouse, and gray jay (Famous 1999). Bird species in the area include residents, short-distance migrants, and neotropical or long-distance migrants. Short-distance migrants such as finches, sparrows, jays, wrens, crows, and chickadees travel to the park in the spring to breed, and arrive about 3–6 weeks ahead of neotropical species. Many are omnivorous (eat both insects and vegetation), but depend heavily on fruit and seed production during their fall and spring migrations. Neotropical migrants, which include flycatchers, swallows, vireos, warblers, and other insect-eating species, winter in Central and South America.

Common resident or short-distance migratory species include white-throated sparrow, golden-crowned kinglet, hermit thrush, mourning dove, black-capped chickadee, cedar waxwing, robin, dark-eyed junco, and American crow. The most common neotropical migrants include black-throated green warblers, common yellowthroat, Nashville warbler, magnolia warbler, alder flycatcher, and Swainson's thrush (Famous 1999).

Although information specific to Schoodic on non-migratory species of birds is not as complete, the park is known to be home to a variety of birds. For example, wetland species include Virginia rail, great blue heron, and wood duck; forest species include ruffed grouse, gray jay, winter wren, and spruce grouse; and species that occupy brushy habitat include cardinals, white-throated sparrow, and eastern meadow-lark (NPS 1997, Northern Prairie Wildlife Research Center 1998).

The Maine coast has a significant population of seabirds, including the double-crested cormorant, great black-backed gull, common tern, and black guillemot. The Maine Natural Areas Program lists Schoodic Island as a "Significant Wildlife Habitat" because it provides important habitat for nesting seabirds, including American black ducks, herring gulls, and common eiders. Maine is the only one of the lower 48 states with a substantial population of breeding common eiders since this is the southern extreme of their breeding range in North America. Schoodic Island is one of 49 sites in Maine considered a significant breeding site for this species (Klein, undated).



A variety of raptors inhabit the Schoodic Peninsula, including osprey, sharp-shinned hawk, northern goshawk, broad-winged hawk, and merlin. The bald eagle (*Haliaeetus leucocephalus*) is the only federally listed wildlife species known to inhabit the study area. The State of Maine has listed the bald eagle as endangered under Maine's Endangered Species Act (1975). Schoodic and Rolling islands have bald eagle nests, which have been occupied on and off since at least 1965. Although bald eagles have been proposed for delisting, they remain a federally threatened species. The population in the Frenchman Bay area has remained below the identified recovery plan target of one chick per breeding pair annually, which may be the result of increased permanent and temporary human disturbances.

The islands in the Schoodic District may also act as refuges for other species of birds whose populations in the area have fallen because of human disturbance. Purple sandpiper (*Calidris maritima*) is one such species with no federal or state protected status, but whose use of the Schoodic Peninsula may be the result of being displaced from other locations due to human activities. (B. Connery, NPS, personal communication October 2001).

**Mammals** - A multi-year inventory of mammals in the study area found that 41 species, including 6 species of bats, occurred on the Schoodic Peninsula (Table 8). The study also found evidence of several larger species of mammals including moose, bobcat, and fisher. The presence of these mammals in the study area is likely due to the relatively undisturbed nature of Schoodic, as well as less developed or human populated areas to the north of the park, which provide habitat and a migration corridor onto the peninsula (Glanz 1999).

The most common of the species noted or collected during this study were small, such as deer mice and meadow voles. In wetland or semi-wet areas, masked shrews were captured most frequently. Meadow voles, which were not captured at all during one year of the study, were found in many habitats and in abundance in another year. Meadow vole habitat included coastal shrublands, broken-canopy forest, and grassy trails.

Species found over a wide range of the study area and in a variety of habitats, often including developed areas, include raccoons, coyotes, skunks, and many small mammals. Upland forest species found in the study area include red squirrel, fisher, white-tailed deer, porcupine, long-tailed weasel, coyote, hare, and black bear. Signs of bobcat were common in lowland forests with dense understories and high prey populations. Species in open country, such as meadows or shrublands, include meadow jumping mice, red fox, and meadow vole. Wetland species include several species of shrews (masked, smoky, water, pygmy, short-tail), bat, raccoon, mink, river otter, muskrat, Southern bog lemming, and beaver. Otter will use the shoreline and water for traveling to new freshwater habitats, as well as for occasional hunting. Mink scat has been found in on the southern and western shores of the Schoodic Peninsula.

A separate study of bats was completed in 1997, because many of the bat species in Maine are being considered for state-listing. Nearly 70% of passes recorded by a bat detector during this study were found over ponds and wet areas, and in particular in pools near where the Schoodic Loop Road crosses from the peninsula onto Big Moose Island (Zimmerman 1999). The bat population in the study area is dominated by two species: little brown bat and northern long-eared bat, which are abundant in much of the state. The small-footed bat was also documented in the study area, making the Schoodic Peninsula the northeastern-most point at which this species has ever been recorded. The big brown bat was also recorded, which is also locally rare because there are few suitable roosting sites (i.e., large caves).

**TABLE 8. MAMMALS FOUND ON THE SCHOODIC PENINSULA**

(Sources: Glanz and Connery 1999, Mittelhauser et al. 1995, Zimmerman 1999)

Species	Schoodic Peninsula	Big Moose Island
Mashed shrew ( <i>Sorex cinerus</i> )	X	X
Smokey shrew ( <i>Sorex fumeus</i> )	X	X
Water shrew ( <i>Sorex palustris</i> )		X
Pygmy shrew ( <i>Microsorex hoyi</i> )		X
Short-tail shrew ( <i>Blarina brevicauda</i> )	X	X
Black bear ( <i>Ursus americanus</i> )	X	X
Raccoon ( <i>Procyon lotor</i> )	X	X
Long-tailed weasel ( <i>Mustela frenata</i> )	X	
Mink ( <i>Mustela vison</i> )	X	X
River otter ( <i>Lutra canadensis</i> )	X	
Striped skunk ( <i>Mephitis mephitis</i> )	X	
Red fox ( <i>Vulpex vulpex</i> )	X	
Coyote ( <i>Canis latrans</i> )	X	X
Bobcat ( <i>Felis rufus</i> )	X	
Eastern chipmunk ( <i>Tamias striatus</i> )	X	X
Red squirrel	X	X
Gray squirrel	X	
Northern flying squirrel	X	X
Muskrat	X	
Deer mouse	X	X
Northern long-eared bat ( <i>Myotis septentrionalis</i> )	X	X
Small-footed myotis ( <i>Myotis leibii</i> )	X	
Hoary bat ( <i>Lasiurus cinereus</i> )	X	
Red bat ( <i>Lasiurus borealis</i> )	X	
Big brown bat ( <i>Eptesicus fiscus</i> )	X	
White-footed mouse	X	X
Southern Bog lemming		X
Boreal red backed vole	X	X
Meadow jumping mouse	X	X
Woodland jumping mouse	X	X
Porcupine		X
Snowshoe hare	X	X
White-tailed deer	X	X
Moose	X	X
Meadow vole	X	X
Hairy-tailed mole	X	X
Fisher	X	
Beaver	X	
Little brown bat ( <i>Myotis lucifugus</i> )	X	X

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## CULTURAL RESOURCES

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### Issues Associated with Cultural Resources

- Grading, digging, or other construction and building removal activities may unearth or disturb archeological or historic resources.
- Historic buildings may be eligible for listing in the National Register of Historic Places, dictating the range of exterior and interior changes NPS is able to make to accommodate planned future uses.
- Any actions that involve resources that may be eligible for the National Register of Historic Places are subject to review to ensure that they are not adversely impacted.
- A thorough archeological survey of the Schoodic District has not been completed; therefore, NPS lacks knowledge on possible locations and conditions of archeological resources, which is necessary to protect them.

### Cultural Resources

**Archeological Resources** - Archeological sites in the study area are primarily shell middens (i.e., waste piles of shells from clams, oysters, and other shellfish), which indicate American Indians occupied the Schoodic Peninsula at least seasonally to gather shellfish and other marine resources. An additional site outside the study area to the west shows evidence of long-distance trade relationships, and another shows evidence of semi-subterranean house pits (Berger & Assoc., Inc. 1999).

These sites are from the Ceramic Period (3,000 to 500 years ago), which derives its name from the earliest evidence of the production and use of fired pottery. Coastal groups living during this period were separate from interior groups in what is now Maine. The diet of these coastal groups was diverse and showed seasonal variations as food abundance changed. Although tribes were primarily nomadic and followed food sources, evidence suggests the possibility that some coastal people occupied sites year round, especially in areas accessible by boat (Berger & Assoc., Inc. 1999). Evidence of

earlier occupation of areas of Maine and the rest of New England dates from as far back as 11,500 years ago when ice began to withdraw from the Gulf of Maine region.

An archeological reconnaissance study of Big Moose Island indicated that the probability of significant archeological sites on the former navy base property is low because the area does not have any of the features likely to have attracted native people year-round (Berger & Assoc., Inc. 1999). These include shelter from wind and waves, proximity to a mudflat, a location on gently sloping ground, adjacent to a beach, or near a travel route.

**Historic Buildings and Cultural Landscapes** - The proposed Schoodic Peninsula Historic District, which does not include the 100-acre former navy base property or coastal islands, is eligible for listing in the National Register of Historic Places as a significant cultural landscape. The NPS has documented its eligibility in a draft National Register nomination dated June 2001. The following historic contexts are relevant to the significance of the Schoodic Peninsula Historic District: Community Development and the Origins of Acadia National Park (1890–1937); John D. Rockefeller, Jr. and the Development of the National Park System (1913–1950); and Rustic Design (1890–1958). The latter includes a sub-theme Rustic Design in NPS. Some of the eligible properties are associated with more than one historic context.

The proposed Schoodic Peninsula Historic District is historically significant because it was conceived and designed as a park and recreation area beginning in the late 19th century. Initially, John G. Moore, a Maine native and Wall Street financier, purchased most of the peninsula and constructed the first scenic road. Later conservation efforts by local citizens and the Hancock County Trustees resulted in the addition of the Schoodic Peninsula to Acadia National Park in 1929. Largely due to efforts by John D. Rockefeller, Jr., NPS initiated a rush of major construction in the 1930s to accommodate the relocation of the navy base from Mount Desert Island to Schoodic.

Many of the park facilities at Schoodic were built in the signature NPS rustic style and are representative of the design standards that NPS

**TABLE 9. PROPOSED SCHOODIC PENINSULA HISTORIC DISTRICT CONTRIBUTING RESOURCES**

(Source: National Park Service 2001)

Contributing Resource	National Register Property Type	Date Built
<b>Developed Areas:</b>		
Schoodic Head	Site	ca. 1930–34
Entrance Road	Structure	ca. 1930
Summit Loop	Structure	ca. 1930
Ranger Station*	Building	1931 (altered post-1984)
Garage	Building	1934
Retaining Wall	Structure	ca. 1930
Schoodic Point	Site	ca. 1934–40
Entrance Road	Structure	ca. 1934
Parking Area	Structure	ca. 1934
Restroom	Building	ca. 1940
Pumphouse	Structure	ca. 1940
Service Road	Structure	post-1933
Moore Plaque	Object	ca. 1937
Trail to Restroom	Site	ca. 1940
Blueberry Hill	Site	ca. 1935–40
Entrance Road	Structure	ca. 1935–40
Parking Area	Structure	ca. 1935–40
<b>Roads:</b>		
Schoodic Loop Road	Structure	1933–35
Gravel Pull-Offs (3)	Structure	pre-1935
West Pond Causeway	Structure	ca. 1934
Arey Cove Causeway	Structure	1935
East Pond Causeway	Structure	1935
CCC Truck Trail	Structure	ca. 1937
Service Roads (3)	Structure	ca. 1935
<b>Hiking Trails:</b>		
Anvil	Site	ca. 1937
Alder	Site	pre-1930
East	Site	1933–40
Schoodic Head	Site	ca. 1937

\* The ranger station is a non-contributing resource because it has lost integrity of design, feeling, and workmanship due to its non-historic exterior material. The ranger station was constructed in the NPS rustic design style; however, the building was altered sometime after 1984, when the original board-and-batten siding was removed and replaced with gray-stained plywood. If the building is restored with the replacement of the board-and-batten siding, the ranger station could become a contributing resource to the Schoodic Peninsula Historic District.

developed during that period (Table 9). These plans were implemented primarily using labor and funding from the New Deal programs. The developed areas in the Schoodic District illustrate the major contribution made by these programs, particularly the Civilian Conservation Corps, in the shaping of the park landscape. The roads and hiking trails are excellent examples of NPS mission to provide public access while seeking to preserve the natural beauty of the parks. These resources exhibit a careful selection and placement of routes to provide dramatic vistas with minimal impact on the landscape. Related structures and engineering features were constructed of local or natural materials to enhance the overall harmonious effect. The Schoodic Loop Road is also significant as an example of Rockefeller's ongoing collaborative efforts with NPS during that period, and it shares many of the design elements used on his carriage roads on Mount Desert Island.

The Rockefeller Building (20,612 square feet) and powerhouse (1,175 square feet) are the only two buildings located within the former navy base that are eligible for listing in the National Register of Historic Places. The U.S. Navy completed National Register nominations for the buildings in September 2001. The buildings are historically significant because they are closely associated with important persons and events concerning the development of Acadia National Park and establishment of the U.S. Navy radio station. The buildings also embody distinctive characteristics of design and construction that possess high aesthetic qualities.

Noted architect Grosvenor Atterbury (1869–1956) designed the Rockefeller Building and powerhouse for NPS in 1933. Atterbury designed the buildings in the French Norman Revival style, which he had used around the same time in the design of carriage road gate houses located within Acadia National Park on Mount Desert Island. Using federally appropriated funds, NPS completed construction of the buildings by 1935.

The Rockefeller Building is a steel-frame apartment building with an exterior of differently textured and colored bricks and stones framed by cypress half-timbering. The building's inte-

rior features and finishings are typical of the 1930s, with the exception of modern upgrades to the kitchens and bathrooms.

The powerhouse is a small utility building immediately adjacent to the Rockefeller Building with a similar architectural style. The powerhouse was expanded in 1943 with a matching roof and brick/stone work so as not to detract from its original design. Of the original five buildings on the base, the Rockefeller Building and powerhouse are the only ones to have survived largely intact.

The former navy base was not included within the boundaries of the potentially eligible Schoodic Peninsula Historic District due to its lack of association with significant themes of the proposed district (community development, origins of Acadia National Park, John D. Rockefeller, Jr., development of the National Park System, and rustic design architecture (see discussion above). The Rockefeller Building and its associated powerhouse are the only identified NRHP-eligible cultural resources on the base. Their significance is related to their association with important persons and events related to the development of Acadia National Park.

Groups of buildings at the base were evaluated for the possibility of creating a historic district; however, no assemblages of historic buildings meeting the criteria for listing were found. The base exhibits "a distinctly late-20th-century character," preventing its National Register qualification as a "distinguishable entity" (Berger & Assoc. 1999).

Appendix D (Tables 1–3) lists buildings at the base and their proposed uses under each alternative.

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## VISITOR EXPERIENCE

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### Issues Associated with the Visitor Experience

Reuse of the former navy base may increase visitation to the Schoodic District and impact the quiet, natural visitor experience.

### Visitor Experience in the Study Area

The University of Vermont completed the Schoodic Peninsula, Acadia National Park, Visitor Study 2000–2001 (Manning et al. 2002), to gather information to assist NPS in developing a new management plan for the Schoodic District of Acadia National Park. The objectives were to collect information on the number and type of visitors and to gain information that will help formulate standards of quality for visitor experiences. The study methods included two surveys of park visitors conducted during the summers of 2000 and 2001. The first survey was conducted on 10 randomly selected days in July and August of 2000; trained surveyors distributed questionnaires to people in 740 vehicles prior to their leaving the park. Of these, visitors completed 581 questionnaires. The same methodology was applied in the 2001 portion of the survey, and 640 visitors completed questionnaires. The study also included counts of cars and people at the following sites: the information kiosk, Frazer Point picnic area, Stacked Rock pullout, Ravens Nest, West Pond Cove, Schoodic Point, Little Moose Island pullout, Blueberry Hill parking area, and Rolling Island pullout. The counts were conducted on an hourly basis on the same 10 randomly selected days as the surveys. The results presented in the following pages reflect information gathered during both years of the study.

While a range of people visit the Schoodic District, most visitors share some common characteristics, including age, group size and composition, and prior knowledge of the area. Average visitors to the Schoodic District are about 50 years old and come from the Northeast. These visitors typically come in pairs or small groups of family and friends. The numbers of male and female visitors are approximately equal. Most visitors learned of the Schoodic Peninsula by word of mouth, and over half had visited the area before participating in the survey. Almost 50% of all visitors to the Schoodic Peninsula cite it as their primary destination. Less than

15% of all visitors to the Schoodic Peninsula cite the Mount Desert Island portion of Acadia National Park as their primary destination.

Average visitors spend approximately one day in the Schoodic District, remaining in the park for less than three hours. They visit several places in the park, the most common being Schoodic Point, the Blueberry Hill parking area, and Frazer Point. Most visitors enter the park between 10:00 a.m. and 2:00 p.m. Visitor and automobile counts indicate that peak visitation occurs at the selected count sites between 1:00 p.m. and 4:00 p.m. In the Schoodic District, the primary activities for typical visitors are watching the surf and driving on the scenic loop around the end of the peninsula. Other common activities include photography, observing nature, and picnicking. However, the most enjoyed pastime is taking in the natural scenic beauty. Most visitors find nothing they dislike about the experience.

The most frequently cited positive qualities of the Schoodic Peninsula are the pristine natural beauty and scenery coupled with the quiet atmosphere and low levels of visitation. People come to Schoodic with the expectation that it will be more peaceful, less crowded, and less littered than the Mount Desert Island portion of Acadia National Park. Most visitors leave the Schoodic District with their expectations fully met. Those who are not fully satisfied cite overcrowding at Schoodic Point as a problem.

Although most visitors do not feel that they negatively impact the Schoodic District, a few visitors mentioned litter, trail erosion, crowding, and traffic as problems. Despite these concerns, most visitors feel that the current management practices adequately maintain the most important features of the peninsula, and therefore no improvements or changes are necessary.

It should be noted that at the time of the surveys, visitors had no access to the navy base and most were not familiar with it. Even in 2001 when it was in full operation it was not perceived as having negative impacts on the park.

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## SOCIOECONOMIC ENVIRONMENT

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### Issues Associated with Socioeconomic Environment

- A large percentage of workers at the Naval Security Group Activity Winter Harbor were local civilians who may be looking for new employment opportunities in the area. Some of the employment lost due to the naval base closing may be replaced by employment opportunities related to the proposed reuse alternatives. New jobs would likely be in the service sector and the education and research sectors, serving visitors at the former navy base. An undetermined number of these jobs could be available to Hancock County residents and others in the region.
- The alternatives at Schoodic could generate spinoff impacts in the local community in addition to direct employment.
- There would be cumulative economic impacts to the area with the reuse of the navy housing in Winter Harbor and operations site in Corea. Some impacts might represent economic losses, while others might be long-term gains.

### Socioeconomic Environment in the Study Area

Hancock County has been selected as the region of influence (i.e., geographic area) on which the analysis of socioeconomic impacts of the proposed alternatives are based. Hancock County is where the Naval Security Group Activity Winter Harbor was located and where the majority of economic impact occurred. This region of influence is the same area the U.S. Navy selected for its environmental assessment of the former navy base's Winter Harbor housing and Corea operations sites, which are not a part of the study area.

**Regional Economy** - The coastal area of Hancock County is rural in nature. Nearly one-third of the county's residents reside in the towns of Bar Harbor, Bucksport, and Ellsworth. Many of the county's towns have from 1,000 to 2,000 residents (Department of the Navy 2002). In 2000, the population in Hancock County was

51,791, growing by 10.3% during the 1990s. The growth took place in coastal communities, and projections indicate that coastal communities will continue growing through 2015. As of 2000, Winter Harbor and Gouldsboro had populations of 988 and 1,941, respectively. Both towns have significant summer populations.

Year-round employment in Hancock County was 34,400 in 1998, with Ellsworth and Bar Harbor employing 9,800 and 6,900, respectively. The fastest-growing segments of the economy have been the service sector and the self-employed sector. Leading employers in Hancock County are The Jackson Laboratories, in Bar Harbor, and Maine Coastal Memorial Hospital, in Ellsworth. Hancock County saw a significant increase in year-round and summer employment during the 1990s. This trend is expected to continue in coastal areas with good access to the state's highway system.

Retirement and second homes for baby boomers will help drive growth. Employment growth in Bar Harbor has been influenced by recreational visitation to Acadia National Park, which is expected to experience continuing growth.

With the closing of the Naval Security Group Activity Winter Harbor, the economy of the Winter Harbor-Gouldsboro area is mainly related to fishing and logging, and the resort economy, including tourists, seasonal homeowners, and retirees. Winter Harbor has approximately 200 year-round homes and 120 seasonal homes, and Gouldsboro has a large concentration of retirees. Fishermen in the area are harvesting less from groundfish stocks in the ocean, but are still enjoying profitable lobster catches near shore. There are several fish processing and canning operations in the area. A major export are sea urchins for the Japanese market.

The unemployment rate in Winter Harbor and Gouldsboro was 5.7% in 2000, compared to the Hancock County rate of 4.5% and the statewide rate of 3.5%. The per capita income of Hancock County in 2000 was \$26,648, compared to \$25,623 for the State of Maine.

The State of Maine's 2001 Economic Development Strategy recognizes the need to

spur economic development in areas of the state, like the Schoodic Peninsula, which have undergone economic setbacks like the naval base closing. The state economic development strategy includes among its economic development strategies expanding Maine's market as a premier tourist destination, and encouraging research and education.

#### **Naval Security Group Activity Winter Harbor -**

In 1997, the Naval Security Group Activity Winter Harbor employed 505 enlisted and civilian personnel, with over 300 living in nearby towns, including military housing in Winter Harbor. The total payroll of the naval facility was \$10,900,000. According to a study, *Economic Impacts of Winter Harbor Naval Base Closure on Hancock County, ME*, by Todd M. Gabe and Thomas G. Allen, of the University of Maine, the indirect impact of the base closing includes the decrease in spending by the U.S. Navy at local businesses and subsequent decreases in purchases made by these businesses at other enterprises in Hancock County. This amount was estimated to be \$1,823,351 annually. The induced economic impact results in a decrease in personal income to other workers in Hancock County, which was estimated to be \$3,957,206 annually. According to the University of Maine study, Hancock County is facing a total economic impact of \$16,680,557 due to the closing of the navy base (Gabe and Allen, 2000).

**Acadia National Park -** In 2001, recreation visits to Acadia National Park totaled 2.52 million, with the Schoodic District receiving approximately 10% of the park's total recreation visits. By 2015, an additional 406,000 recreation visits are projected for Acadia National Park, with the bulk of visitors arriving in the summer and visiting the park on Mount Desert Island.

According to *Economic Impacts of Selected National Parks; Update to Year 2001* (Stynes and Sun 2002), local day visitors contributed 5% of overall recreation visits, day visitors from other regions 25%, and visitors staying at lodges and campsites were 60% and 10%, respectively. The 2.52 million recreation visits were converted to 820,000 party days (the number of days each visitor party spends in the local region based on an average of three people per visitor party), which was the spending unit in the MGM2 analysis.

On average, visitors spent \$165 per party per day at the local area. Total visitor spending was estimated to be \$134.85 million in 2001.

The \$134.85 million spent by visitors to Acadia had a direct economic impact of \$116.02 million in direct sales, \$41.05 million in personal income (wages and salaries), \$61.60 million in value added, and 2,830 jobs. Among all direct sales, \$50.65 million was from the lodging sales, \$29.17 million from food and drinking places, \$11.86 million from admission fee and \$12.97 million from the retail trade. As visitor spending circulates through the local economy, secondary effects created additional \$19.64 million personal income and 765 jobs. In summary, visitors to Acadia spent \$134.85 million in 2001, which supported a total of \$170.12 million in direct sales, \$60.69 million in personal income, \$95.52 million in value added (the sum of employee compensation, proprietary income, and indirect business tax), and 3,594 jobs (Stynes and Sun 2002).





## PART FOUR: ENVIRONMENTAL IMPACTS

### METHODOLOGY

This section describes the sources of data and defines the threshold terms used to assess impacts for each resource. In the absence of definitions specific to a particular resource, the following standard definitions are used:

- *Negligible*: The impact is at the lower levels of detection, or less than an approximate 1% change will occur over the life of the plan.
- *Minor*: The impact is slight, but detectable; or an approximate 1–10% change would occur over the life of the plan.
- *Moderate*: The impact is readily apparent, and has the potential to become major; or an approximate 11–20% change would occur over the life of the plan.
- *Major*: The impact is severe, or a greater than approximate 20% change would occur over the life of the plan.

The term "localized impact" refers to impacts confined to the study area or a portion of it (e.g., the actual location where vegetation is removed). When comparing changes to existing conditions or to No Action, impacts were often only easily detectable on a localized basis. For instance, removing pavement and allowing native vegetation to repopulate a few acres on the base may have a readily apparent or moderate impact in that location or even base-wide. However, compared to the thousands of acres of similar vegetation on the entire peninsula or in the region, the change would be less than 1%, or negligible. The impacts are often analyzed both locally and regionally to provide two separate contexts to understand the relative magnitude.

### IMPACT ANALYSIS METHOD

*Management Policies 2001* (NPS 2000d) require analysis of potential effect to determine whether or not actions would impair recreation area resources or values.

The fundamental purpose of the National Park System, established by the Organic Act and reaffirmed by the General Authorities Act, as amended, begins with a mandate to conserve park resources and values. NPS managers must always seek ways to avoid, or to minimize to the greatest degree practicable, actions that would adversely affect park resources and values.

Although Congress has given the National Park Service (NPS) the management discretion to allow certain impacts within parks, that discretion is limited by the statutory requirement (enforceable by the federal courts) that NPS must leave park resources and values unimpaired, unless a particular law directly and specifically provides otherwise.

The impairment that is prohibited by the Organic Act and the General Authorities Act is an impact that, in the professional judgment of the responsible NPS manager, would harm the integrity of park resources or values, including the opportunities that otherwise would be present for the enjoyment of those resources or values. As noted in the conclusions of the Impacts sections, no impairment of any park resource or value is expected from implementing any alternative.

An impact on any park resource or value may constitute impairment. However, an impact would be most likely to constitute impairment if it affects a resource or value whose conservation is:

- Necessary to fulfill specific purposes identified in the establishing legislation or proclamation of Acadia National Park;
- Key to the natural or cultural integrity of Acadia National Park or to opportunities for enjoyment of Acadia National Park; or
- Identified as a goal in Acadia's general management plan or other relevant NPS planning documents.

A determination of impairment is included in the impact analysis section for all cultural and natural impact topics relating to Acadia National Park resources and values. It is based on the impact–topic–specific definition of impairment that is provided in the methodology section for each impact topic. The following process was used to determine whether the alternatives had the potential to impair park resources and values:

1. The park’s enabling legislation, the *General Management Plan*, the *Strategic Plan*, and other relevant background were reviewed with regard to the unit’s purpose and significance, resource values, and resource management goals or desired future conditions.
2. Management objectives specific to resource protection goals at the park were identified.
3. Thresholds were established for each resource of concern to determine the context, intensity, and duration of impacts.
4. An analysis was conducted to determine if the magnitude of impact reached the level of “impairment,” as defined by NPS Management Policies.

Cumulative impacts are defined as those impacts resulting from an alternative which add to past, present, or reasonable future impacts to the same resource. For example, air quality in the park is affected by stationary and mobile sources originating in the midwestern United States. These have an additive or cumulative effect on the much more minor impacts of car traffic in the study area, and so are included in the analysis.

## **NATURAL RESOURCES**

### **Air Quality**

The air resource program at Acadia National Park, which began in the early 1980s, includes monitoring, research, and regulatory interaction with state and federal agencies. Core program elements include long-term monitoring for ozone, sulfur dioxide, nitrogen oxides, volatile organic compounds, fine particulates, visibility, mercury deposition, acid precipitation, and ultraviolet radiation. In addition, there is an

ongoing effort to determine the biological effects of selected air pollutants on park resources. The air resource program at Acadia National Park is a collaborative effort involving the NPS Air Resources Division and Northeast Regional Office, the Maine Department of Environmental Protection, and park natural resource staff. In addition, there are a number of other important partnerships with the U.S. Geological Survey, Environmental Protection Agency, universities, and other state and regional agencies for conducting air-related research and monitoring at Acadia National Park.

Ground-level ozone has been monitored at Acadia National Park since 1982 at McFarland Hill and since 1995 at Cadillac Mountain. Sulfur dioxide was monitored continuously at the park from 1988 through 1991. Acadia National Park discontinued continuous monitoring due to consistently low ambient levels, less than 0.02 ppm. Sulfur dioxide is currently monitored bi-weekly as part of the IMPROVE fine particulate monitoring program. In 1995, the Maine Department of Environmental Protection established a Photochemical Assessment Monitoring Site on Cadillac Mountain. The site includes continuous monitoring for NO<sub>x</sub>, VOCs, ozone, and meteorological parameters. A number of key meteorological parameters are monitored at both the McFarland Hill and Cadillac Mountain sites, including wind speed and direction, relative humidity, temperature, solar radiation, and rainfall. In addition to providing data essential to assessing the basic ecological integrity of park ecosystems, meteorological data are also used in various modeling applications (e.g., back trajectory analysis) to determine potential air pollution sources and source areas. Fine Particulate Monitoring has been conducted since 1987 as part of the IMPROVE program. This program involves weekly sampling of fine particulates in the 0–2.5 (PM<sub>2.5</sub>) and 0–10 (PM<sub>10</sub>) micron size ranges, and analyzes for mass volume, elemental compounds (H, Na–Pb), nitrate, sulfate, organic and elemental carbon.

Acadia National Park is one of more than 200 sites nationwide that participates in the National Atmospheric Deposition Program (NADP). NADP, which began in 1978, is a long-term program to determine the chemical composition of atmospheric precipitation, and

the spatial and temporal trends of deposition. The park site is one of four NADP sites in Maine and is operated in cooperation with Maine Department of Environmental Protection. Since 1998 wet and dry deposition of mercury have also been monitored at the parks as part of the national Mercury Deposition Network.

In addition to these sources of information, the analysis used a transportation assessment study (U.S. Department of Transportation 2002) that identified how many cars use the peninsula roads now, and the expected offset of bike lanes, ferries, and buses. The NPS has also monitored automobile traffic and completed a set of approximate calculations to estimate the changes the closure of the base by the U.S. Navy brought, as well as those each alternative might bring. Average emissions from mobile sources were calculated using national vehicle and fuel emissions laboratory estimates (Environmental Protection Agency 2000).

The following definitions of thresholds were used in the air quality analysis:

- **Negligible:** The impact is at the lower levels of detection; adverse or positive impacts are likely to be less than about 1% change from No Action.
- **Minor:** The impact is slight but detectable; no standards are violated. Adverse or positive changes are likely to be in the 1–10% range.
- **Moderate:** The impact may exceed standards on a local and short-term basis, or is readily apparent. Adverse or positive changes are likely to be in the 10–20% range.
- **Major:** The alternative would result in sustained exceedances of air quality standards, or contribute to an obvious and permanent adverse change or improvement in local or regional conditions.
- **Impairment:** Impairment is defined as impacts that
  - have a major adverse effect on park air quality and values,

- contribute to deterioration of the park’s resources to the extent that its purpose could not be fulfilled as established in its enabling legislation,

- affect resources key to the park’s natural or cultural integrity or opportunities for enjoyment, or

- affect the resource whose conservation is identified as a goal in the park’s *General Management Plan* or other park planning documents.

### Water Resources

Information from existing agency reports prepared by both the U.S. Navy and NPS were used to assess existing water supply and wastewater disposal facilities and capacity, as well as to identify the locations and extent of water features (bogs, streams, etc.). The degree of change in water supply or wastewater was based on the number of program participants and staff occupying the base and compared to day use of the facility by the U.S. Navy.

The following thresholds were used in assessing impacts to water resources:

- **Negligible:** The impact to water features is at the lower limits of detection. A less than 1% change in water quality or water supply would result.
- **Minor:** The impact to water features is slight but detectable. A change of 1–10% in water quality or water supply would result from actions in the alternative.
- **Moderate:** The impact to water features is apparent, but is either temporary, localized, or for other reasons is not a major concern. A change of 11–20% in water quality or water supply would result from actions in the alternative.
- **Major:** The impact to water features is obvious and a significant problem, resulting in damage on a study-area scale, or severe and irreversible localized impacts. A change of more than about 20% in water quality of water supply actions would result from actions in the alternative.

- **Impairment:** Chemical or physical changes to water quality would be detectable and would be substantially and frequently altered from the historical baseline or desired water quality conditions and/or water quality standards. The impacts would involve deterioration of the park's water quality and water resources over the long term, to the point that the park's purpose could not be fulfilled, or resources could not be experienced and enjoyed by future generations.

## Soils

Information from agency reports, and in particular the *Schoodic Peninsula, Acadia National Park, Visitor Study 2000–2001* (Manning et al. 2002), was used to assess impacts to soils on trails. Increased use of those trails over the 10–15 year life of the plan was assumed to increase impacts to soils similarly. The standard definitions of impacts identified at the beginning of this section were applied in assessing impacts.

Impairment is defined as impacts that:

- have a major adverse effect on park resources and values,
- contribute to deterioration of the park's resources to the extent that its purpose could not be fulfilled as established in its enabling legislation,
- affect resources key to the park's natural or cultural integrity or opportunities for enjoyment, or
- affect the resource whose conservation is identified as a goal in the park's *General Management Plan* or other park planning documents.

## Vegetation

Information from the visitor survey identified above was used to assess impacts to vegetation along monitored trails. Additional reports cited in Part Three: Affected Environment, and anecdotal data supplied by park staff and other professionals, were used to identify vegetation types in areas where impacts from additional visitor use, or from building removal or rehabilitation, might be expected.

The following thresholds were used to assess impacts:

- **Negligible:** The impact is at the lower levels of detection (a less than 1% change) in the short and long term. No protected species or habitats are affected either positively or negatively.
- **Minor:** The impact is slight but detectable (a 1–10% change) in the short term, and/or at the lower levels of detection (a less than 1% change) in the long term. Effects on special-status species are discountable (i.e., extremely unlikely to occur and not able to be meaningfully measured, detected, or evaluated) or are completely beneficial. A finding of “may affect/not likely to adversely affect” is likely from the U.S. Fish and Wildlife Service (USFWS).
- **Moderate:** The impact is readily apparent (an approximate 11–20% change) in the short term, and/or slight but detectable (a 1–10% change) in the long term. Effects on special-status species are discountable (i.e., extremely unlikely to occur and not able to be meaningfully measured, detected, or evaluated) or are completely beneficial. A finding of “may affect/not likely to adversely affect” is likely from the USFWS.
- **Major:** The impact is severe (a greater than 20% change) in the short term and/or readily apparent (an approximate 11–20% change) in the long term, or vegetation in the study area would experience an obvious and permanent beneficial effect. An adverse effect to a listed protected species may occur as a direct or indirect result of actions in an alternative and the effect is not discountable or is completely beneficial. A finding of “may affect/likely to adversely affect” from the USFWS is likely.
- **Impairment:** Actions in an alternative would contribute substantially to the deterioration of park vegetation to the extent that the vegetation would no longer function as a natural system. In addition, these adverse major impacts to park resources and values would:

- contribute to deterioration of these resources to the extent that the park's purpose could not be fulfilled as established in its enabling legislation,
- affect resources key to the park's natural or cultural integrity or opportunities for enjoyment, or
- affect the resource whose conservation is identified as a goal in the park's general management plan or other park planning documents.

The alternative would jeopardize the continued existence of a protected species or adversely modify habitat critical to a species within or outside park boundaries. A finding of "likely to jeopardize protected or proposed species/ adversely modify critical habitat" from the USFWS is likely.

#### Coastal Resources

The literature was consulted to identify the types of coastal plants and animals in the study area, as well as the types of impacts actions in the alternatives might cause. The extent of impacts on stationary coastal resources was assumed to be directly related to the quantity and type of visitor use it would receive. The standard definitions of thresholds were used to assess impacts.

Impairment is defined as impacts that:

- have a major adverse effect on park resources and values,
- contribute to deterioration of the park's resources to the extent that its purpose could not be fulfilled as established in its enabling legislation,
- affect resources key to the park's natural or cultural integrity or opportunities for enjoyment, or
- affect the resource whose conservation is identified as a goal in the park's *General Management Plan* or other park planning documents.

#### Wildlife

The literature and agency reports were used to determine the types and magnitude of impacts likely to result from the types of actions under each alternative. Quantitative estimates on the amount of increase in visitation were available from the NPS regional office staff; these increases were not assumed to have the same increase in impact on wildlife. For example, a 5% increase in visitation is not always equal to a 5% increase in impact on wildlife, as wildlife species are mobile and much of the peninsula is in relatively undisturbed condition, allowing for free movement and relocation. In addition, a 5% increase in relatively poor-quality wildlife habitat would have relatively small impacts, whereas a similar increase in undisturbed habitat, or where sensitive species reside, could have a major effect on some individuals. Surveys of wildlife conducted in the mid-1990s in the study area (Mittelhauser et al. 1995, Mittelhauser et al. 1996) were particularly well used. The Maine Natural Areas Program provided data on rare, threatened, and endangered plant and animal species, and habitats of special concern to the state.

The following definitions were used to assess impacts to wildlife:

- **Negligible:** The impact to non-protected wildlife is at the lower levels of detection in the short or long term. No protected species are affected.
- **Minor:** The impact to non-protected wildlife is slight but detectable in the short term and at the lower level of detection in the long term. Only non-breeding animals are present, or proposed mitigation to breeding animals will fully offset impacts to these individuals. Effects on special-status species are discountable (i.e., extremely unlikely to occur and not able to be meaningfully measured, detected, or evaluated) or are completely beneficial. A finding of "may affect/not likely to adversely effect" is likely from the USFWS.
- **Moderate:** The impact to non-protected wildlife is readily apparent in the short term and/or slight but detectable in the long term. Actions may interfere with activities neces-

sary for survival or breeding on an occasional or short term basis, but are not expected to threaten the continued existence of the species in the park. Effects on special-status species are discountable (i.e., extremely unlikely to occur and not able to be meaningfully measured, detected, or evaluated) or are completely beneficial. A finding of “may affect/not likely to adversely effect” is likely from the USFWS.

- **Major:** The impact to non-protected wildlife is severe in the short term, or readily apparent or severe in the long term. Mortality or other effects are expected on a regular basis and could threaten continued survival of the species in the park. An adverse effect to a listed protected species may occur as a direct or indirect result of actions in an alternative and the effect is not discountable or is completely beneficial. A finding of “may affect/likely to adversely affect” from the USFWS is likely.
- **Impairment:** Some of the major impacts described above might be an impairment of park resources if their severity, duration, and timing resulted in the elimination of a native species or significant population declines in a native species, or they precluded the park’s ability to meet recovery objectives for listed species. In addition, these adverse, major impacts to park resources and values would:
  - contribute to deterioration of the park’s wildlife resources and values to the extent that the park’s purpose could not be fulfilled as established in its enabling legislation,
  - affect resources key to the park’s natural or cultural integrity or opportunities for enjoyment, or
  - affect the resource whose conservation is identified as a goal in the park’s general management plan or other park planning documents.

The alternative would jeopardize the continued existence of a protected species or adversely modify habitat critical to a species within or outside park boundaries. A finding of “likely to jeopardize protected or proposed species/adversely modify critical habitat” from the USFWS is likely.

## **CULTURAL RESOURCES**

A review of relevant resource materials regarding cultural resources at the Schoodic District, as well as communications with park staff, was completed to identify and evaluate potential impacts to historic properties located within the study area. The most recent cultural resource study in the general area was performed on former navy base properties in and around the Schoodic Peninsula (Berger & Assoc., Inc. 1999). A review of previously conducted cultural resource work in the general area is summarized in that document. A cultural landscape inventory and National Register nomination are underway. The U.S. Navy completed nominations to the National Register of Historic Place for the Rockefeller Building and powerhouse located on the former navy base (September 2001).

The following assumptions were used in the impact analysis for cultural resources located within the Schoodic Peninsula:

- Visitors accessing the former navy base under all alternatives would use the existing Schoodic Loop Road.
- A user's destination point on the former navy base under all alternatives does not preclude their visiting other areas of the peninsula (trails, parking, restrooms), and, in fact, would likely encourage it. In addition, it is assumed that program participants visiting the former navy base have an indirect influence on other non-participants visiting the Schoodic District.

Since no comprehensive cultural landscape inventory exists for the entire Schoodic District, the degree of impact (beneficial or adverse) is not always quantifiable for proposed actions. In this case, a range of potential impacts/benefits may be presented.

The term "ineligible" refers to cultural resources not considered eligible for the National Register of Historic Places.

The "area of potential effect" used for this analysis is the entire Schoodic District, including the former navy base property.

For this analysis, impacts are described in terms of type (beneficial or adverse), context, and intensity. The definitions of levels of intensity vary by impact topic and resource. Generalized definitions related to intensity of impacts to historic properties are presented below.

- **Negligible:** Impact barely perceptible and not measurable; confined to small areas or a single contributing element of the historic properties or archeological sites with low data potential.
- **Minor:** Impact to the resource is perceptible and measurable, but is localized and confined to a single contributing element of the historic properties or archeological sites with low to moderate data potential.
- **Moderate:** Impact is clearly detectable and sufficient to cause a change in character-defining features of the historic resources or archeological sites that could have appreciable effects on the resource.
- **Major:** Impact would have a substantial, highly noticeable influence on the defining features of the historic resources or archeological sites. It would create adverse impacts to the resource and could lead to an impairment of a park resource.
- **Impairment:** Impairment is defined as impacts that:
  - have a major adverse effect on park resources and values,
  - contribute to deterioration of the park’s resources to the extent that its purpose could not be fulfilled as established in its enabling legislation,
  - affect resources key to the park’s natural or cultural integrity or opportunities for enjoyment, or
  - affect the resource whose conservation is identified as a goal in the park’s *General Management Plan* or other park planning documents.

## **VISITOR EXPERIENCE**

The primary source of data for this section is the *Schoodic Peninsula, Acadia National Park, Visitor Study 2000–2001* (Manning et al. 2002). This survey included responses from navy personnel, as well as visitors to the Schoodic District. The study gathered information about the sites visitors are most inclined to seek, the number of visitors throughout the day at key locations, the number of cars on roads in the study area throughout the day, information about the quality of the visitor experience, and on those features of the study area visitors most enjoyed. The standard definitions of thresholds were used to assess impacts.

## **SOCIOECONOMIC ENVIRONMENT**

The research on socioeconomic impacts was completed by obtaining data from federal, state, and county agencies, and economic studies. In 2000, the University of Maine completed an assessment of the impacts of the navy base closure on the economy of Hancock County, Maine (Gabe and Allen 2000). The economic impacts of Acadia National Park were determined by using the Money Generation Model Version 2 (MGM2) developed by Daniel Stynes and Dennis Propst at Michigan State University based on a NPS economic model that estimates the economic benefits of national parks for regional economies (Stynes et al. 2000). MGM2 estimates the impacts that park visitors have on the local economy in terms of their contribution to sales, income, and jobs in the area. Stynes et al. expanded the original model to include the economic effects of NPS salaries, park construction projects, and other park-related activities; and expenditures by other outside parties, such as state spending for park access roads and dollars spent by outside interests for marinas, motels, restaurants, and other park-related capital development projects. The economic model produces quantifiable measures of park economic benefits that can be used for planning, concessions management, budget justifications, policy analysis, and marketing.

The standard definitions of thresholds were used to assess impacts.



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## **LAWS, REGULATIONS, AND POLICIES**

This section describes overarching laws and policies guiding NPS and the management of specific resources.

### **OVERARCHING LAWS**

#### **National Environmental Policy Act (NEPA)**

NEPA is the law that requires all federal agencies to examine possible environmental impacts and alternatives to any proposal they may be considering. It is a mandatory environmental planning process if the proposal may have impacts on physical or natural resources, and includes opportunities for public involvement and comment. NEPA is implemented through regulations of the Council on Environmental Quality (CEQ) (40 CFR 1500-8). The NPS has adopted procedures to comply with NEPA and the CEQ regulations, as found in Director's Order 12: Conservation Planning, Environmental Impact Analysis, and Decision Making (NPS 2000) and its accompanying handbook. This policy guidance implements the applicable federal laws and provides specific requirements for completing environmental impact statements.

NEPA requires that agencies analyze impacts to resources that might experience effects, reasonable alternatives, and cumulative impacts. Cumulative impacts are those impacts on a resource that would occur independent of the action NPS is considering. The analysis of cumulative impacts helps the reader and decision maker understand something about the "total" or "combined" impacts on a resource that may be also affected by the actions in one of the alternatives. The analysis includes actions taken in the past, present, or in the reasonably foreseeable future, and is without regard to land ownership. Therefore, actions on private or adjacent state land that contribute to impacts on resources in the study area can be included.

#### **Organic Act of 1916**

The founding legislation of NPS, the Organic Act of 1916, prohibits the impairment of park resources and values. *NPS Management Policies 2001* (NPS 2001a) state "impairment...is an impact that, in the professional judgment of the

responsible NPS manager, would harm the integrity of park resources or values, including the opportunities that otherwise would be present for the enjoyment of those resources or values."

This Environmental Impact Statement (EIS) includes an assessment of whether impairment of park resources or values might be affected as may be identified in the NPS Management Policies 2001. The policies provide guidance on whether an activity with major impacts to resources is also likely to impair those resources. An impact would be more likely to constitute an impairment to the extent that it affects a resource or value whose conservation is necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park, is the key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or is identified as a goal in Acadia's *General Management Plan* or other relevant NPS planning documents. An impact would be less likely to constitute an impairment to the extent that it is an unavoidable result, which cannot be reasonably further mitigated, of an action necessary to preserve or restore the integrity of park resources or values.

These policies have been integrated into this EIS by analyzing whether impacts to each affected resource might be an impairment. The definition of an impairment is: the impact is so sustained and severe that the integrity of the resource will be lost park-wide, and the resource is either important to park purposes or is one whose protection has been spelled out as a reason for creating the park.

### **NATURAL RESOURCES**

#### **Air Quality**

A 1977 amendment to the Clean Air Act designated all national parks over 6,000 acres as mandatory Class I areas, worthy of the greatest degree of air quality protection under the Act. Congress declared as a national goal "the prevention of any future, and the remedying of any existing, impairment of visibility in mandatory Class I federal areas...." NPS managers are expected to know the condition of their air quality and err on the side of resource protection. The NPS is invited to comment on any

state air quality permit applications for new stationary sources expected to emit over 100 tons per year of a single pollutant.

In addition, the Environmental Protection Agency has set air quality standards for six principal "criteria" pollutants, including carbon monoxide, ozone, and two types of particulates (those smaller than 10 microns and those smaller than 2.5 microns). It also regulates the precursors of acid rain (sulfates and nitrates), and mercury from some sources (municipal waste combustors, medical waste incinerators), and monitors mercury emissions from others (notably coal-fired power plants).

*NPS Management Policies 2001* (NPS 2001a) require parks to perpetuate the best possible air quality in park units to preserve natural and cultural resources and to sustain visitor enjoyment, including scenic vistas. Any source of air pollution is required to comply with federal, state, and local air quality regulations and permitting requirements. Indoor air quality in NPS units is also required to be healthful.

#### **Water Resources**

The Environmental Protection Agency has developed national recommended ambient water quality criteria for approximately 120 priority pollutants for the protection of both aquatic life and human health (Environmental Protection Agency 1999a). These criteria have been adopted as enforceable standards by most states. *NPS Management Policies 2001* state that NPS will "take all necessary actions to maintain or restore the quality of surface waters and ground waters within the parks consistent with the Clean Water Act and all other applicable federal, state, and local laws and regulations."

Simply stated, a water quality standard defines the water quality goals of a waterbody by designating uses to be made of the water, by setting minimum criteria to protect the uses, and by preventing degradation of water quality through review and selective permitting of discharges into surface waters. In the study area, the U.S. Navy had a permit for discharge of a certain volume of treated wastewater into Arey Cove, for example.

#### **Soils**

No federal laws specifically regulate soil erosion or loss in parks. However, the Clean Water Act and Maine Natural Resource Protection Act are both considered core laws of the Maine Coastal Program and reinforce provisions of the Coastal Zone Management Act of 1972. These laws regulate such activities as soil disturbance that could result in sedimentation of wetlands or other water bodies. In addition, *NPS Management Policies 2001* require NPS managers to "...prevent, to the extent possible the unnatural erosion, physical removal, or contamination of the soil..." NPS managers are required to prevent or minimize adverse impacts on soils to the extent they are able to do so. Parks are required to obtain surveys of soils adequate for the management of park resources.

#### **Vegetation**

Biological resource management in NPS has its roots in its founding legislation, the Organic Act of 1916, which directs parks to "conserve the scenery and the natural and historic objects and the wild life therein to leave them unimpaired for the enjoyment of future generations." These general powers were broadened (by the Redwood National Park Act, 1988) in which Congress gave further direction that parks should not be managed in any way that might reduce values or purposes for which they have been established. In accord with these laws, *NPS Management Policies 2001* state that the parks will maintain as parts of the natural ecosystems of parks all native plants and animals.

The Endangered Species Act states that plant species are of aesthetic, ecological, educational, historical, recreational, and scientific value to the nation. The Act's purpose is to conserve the ecosystems upon which species depend, and generally, to increase populations and secure sufficient habitat to recover species to viable levels. The act requires NPS to determine whether an action would adversely affect federally listed threatened or endangered plant species. Consultation with the U.S. Fish and Wildlife Service is required if this is the case, to ensure the action will not jeopardize the species' continued existence or result in the

destruction or adverse modification of critical habitat. The act also prohibits activities that would constitute an unauthorized "taking" of the protected species.

The NPS is required to control access to critical habitat for listed species, and perpetuate the natural distribution and abundance of these species and the ecosystems upon which they depend. *NPS Management Policies 2001* also require consideration of all state and locally listed species in planning activities.

Wetlands are protected by Section 404 of the Clean Water Act, which requires permission from the U.S. Army Corps of Engineers to fill more than an incidental acreage of wetland. National Park Service Director's Order 77-1 establishes policies, requirements, and standards for implementing Executive Order 11990, which directs federal agencies to avoid adverse impacts to wetlands. The National Park Service specifically avoids impacts to wetlands wherever possible, but prepares a "statement of findings" including plans to compensate for impacts that could not be avoided if actions will affect wetlands.

#### **Coastal Resources**

The Coastal Zone Management Act requires federal agencies to prepare a consistency determination for every activity in or outside of the coastal zone that affects land or water use of the coastal zone. *NPS Management Policies 2001* allow natural shoreline processes to continue without interference in parks, and investigate alternatives for mitigating the effects of human alterations of natural coastal processes and restoring natural conditions. Beyond this specific guidance, the laws, regulations, and policies cited in this section under "Vegetation" and "Wildlife" would also apply to coastal biological resources.

#### **Wildlife**

The Organic Act of 1916, as noted above, directs parks to "conserve the scenery and the natural and historic objects and the wild life therein to leave them unimpaired for the enjoyment of future generations." *NPS Management Policies 2001* state that the parks will maintain as parts of the natural ecosystems of parks all native plants and animals.

The Endangered Species Act states that fish and wildlife species are of aesthetic, ecological, educational, historical, recreational, and scientific value to the nation. The Act's purpose is to conserve the ecosystems upon which species depend, and generally, to increase populations, and secure sufficient habitat to recover species to viable levels. The act requires NPS to determine whether an action would adversely affect federally listed threatened or endangered animal species. Consultation with the U.S. Fish and Wildlife Service is required if this is the case, to ensure the action will not jeopardize the continued existence of the species or result in the destruction or adverse modification of critical habitat. The act also prohibits activities that would constitute an unauthorized "taking" of the protected species.

The NPS is required to control access to critical habitat for listed species and perpetuate the natural distribution and abundance of these species and the ecosystems upon which they depend. *NPS Management Policies 2001* also require consideration of all state and locally listed species in planning activities.

### **CULTURAL RESOURCES**

All federal undertakings are subject to a variety of regulations designed to protect the environment, including cultural resources. Compliance with the following laws provides the foundation for protecting cultural resources in the United States:

- The National Historic Preservation Act of 1966, as amended (16USC 470 et seq.)
- The Native American Graves Protection and Repatriation Act of 1990 (25USC 3001 et seq.)
- The American Indian Religious Freedom Act of 1978 (42USC 1996 and 1996a)
- The Archeological Resources Protection Act of 1979 (16 USC 470)
- Executive Order 11593 (36 C.F.R. 8921)

The National Historic Preservation Act (NHPA) is the principal legislative authority for management of cultural resources associated with NPS projects. Section 106 of the NHPA requires all federal agencies to consider the effects of their actions on cultural resources determined eligible for inclusion in the National Register of Historic Places. In addition, the NHPA requires that federal agencies take actions to minimize harm to historic properties that would be adversely affected by a federal undertaking. Section 110 of the NHPA, among other things, charges federal agencies with the responsibility for establishing preservation programs for identification, evaluation, and nomination of historic properties to the National Register of Historic Places.

The NPS is charged with protection and management of cultural resources in its custody, as provided in federal laws, regulations, and policies. The NPS is mandated to avoid or mitigate to the greatest degree practicable adverse impacts to park resources and values. Although NPS has the discretion to allow certain impacts within parks, it is limited by the statutory requirement that park resources and values remain unimpaired, unless specified otherwise by law.

### **VISITOR EXPERIENCE**

The 1916 Organic Act requires NPS to ensure its natural and cultural resources are not impaired, but it also requires parks "to provide for the enjoyment of" these resources. *NPS Management Policies 2001* state that the enjoyment of park resources and values by the people of the United States is part of the fundamental purpose of all parks and that NPS is committed to providing appropriate, high-quality opportunities for visitors to enjoy the parks. Because many forms of recreation can take place outside a national park setting, NPS will therefore seek to provide opportunities for forms of enjoyment that are uniquely suited and appropriate to the superlative natural and cultural resources found in a particular unit, and defer to other agencies, private industry, and non-governmental organizations to meet the broader spectrum of recreational needs and demands that are not dependent on a national park setting.

Also, unless mandated by law, NPS will not allow visitors to conduct activities that:

- would create an unsafe or unhealthful environment for other visitors or employees,
- are contrary to the purposes for which the park was established, or
- would unreasonably interfere with the atmosphere of peace and tranquility, or the natural soundscape maintained in wilderness and natural, historic, or commemorative locations within the park; NPS interpretive, visitor service, administrative, or other activities; NPS concessioner or contractor operations or services; or other existing, appropriate park uses.

### **SOCIOECONOMIC ENVIRONMENT**

The handbook accompanying Director's Order 12, *Conservation Planning, Environmental Impact Analysis and Decision Making* (NPS 2000), directs NPS to examine impacts to the socioeconomic environment in environmental assessments and environmental impact statements. The only policy guidance outside of this source for socioeconomics is supplied by Executive Order 12898 (1994) requiring all federal agencies to analyze and consider impacts of actions on minority and low-income populations and communities to make sure they are not adversely and disproportionately affected.

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## IMPACTS TO NATURAL RESOURCES

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### **AIR QUALITY**

#### **Impacts Common to All Alternatives**

**Analysis** - All alternatives call for the consideration of public transportation, such as buses or shuttles. Adding buses during the summer months would remove between 20 and 40 vehicles per day, but would add seven bus trips (assuming U.S. Department of Transportation 2002 figures) along the Schoodic Loop Road. The difference in emissions is 0.03 fewer tons of hydrocarbons, 0.32 fewer tons of carbon monoxide, and 0.037 more tons of nitrogen oxides. This represents a 1.2% decrease for hydrocarbons, 1.5% decrease for carbon monoxide, and a 2.2% increase in NO<sub>x</sub> from vehicles, a minor benefit to local air quality.

If vehicles were parked outside the limits of the park, or just inside at Frazer Point or another park-and-ride location, emissions inside the park would be reduced. Assuming two passengers per car, and that half the bicyclists park and ride, annual emissions from vehicles could be reduced 6–8%, a minor benefit to local air quality.

All alternatives include the possible use of limiting or otherwise managing the number of available parking spaces to a maximum of 350 to reduce the use of personal vehicles. If such measures included very clear signs from Moore Road or State Route 186 to indicate parking was full, such a scheme might be effective in reducing emissions inside the park and encouraging bus or bike ridership. However, without clear information for those entering the park far enough in advance that alternative transportation is available, limiting parking may actually result in increased emissions as cars idle waiting for parking, or complete another loop of the peninsula seeking alternative parking locations.

#### **Impacts of Alternative A: No Action**

**Analysis** - The primary impact to air quality on the Schoodic Peninsula from the No Action Alternative would be from mobile sources. A

recently prepared study of alternate transportation for the Schoodic Peninsula (U.S. Department of Transportation 2002) indicated that on average, about 800 cars traveled the 1-mile Moore Road leading from State Route 186 into the park, continued on around the 6-mile Schoodic Loop Road, and returned to State Route 186 via the 1.9-mile Wonsqueak Road out of the park each day during 2001. These data shows that between 500 and 800 vehicles travel the Schoodic Loop Road. Of this, about 350 were vehicles driven by navy personnel to and from the base. The average number of recreational trips to the park varies seasonally, with about 150 trips per day during all but the summer months, and three times this number during July, August, and September. As of 2000, this translates to 208,000 vehicle trips along the park road at Schoodic per year. Given the assumptions outlined in "Methodology," this translates to 4.1 tons of hydrocarbons, 36.5 tons of carbon monoxide, and 2.8 tons of nitrogen oxides to the air inside the park. Additional pollutants would be emitted from vehicles using Moore Road to reach the park and exiting the park on Wonsqueak Road.

The No Action Alternative would result in fewer car trips driven along the Schoodic Loop Road than current conditions, as navy personnel would no longer commute. A small number of programs might take place at the base, primarily for school or community groups. Some staff would commute, and some lodging (both camping and motel-like rooms) would be available. Recreational use would increase very slowly, concomitant with the rest of the park, at slightly over 1% per year. Given these assumptions, the projected annual number of vehicle trips in the park would be about 155,000 by 2015. Assuming continuing reductions in the average vehicle emission rates (associated with improved technology nation-wide), these cars would add 2.43 tons of hydrocarbons, 21.7 tons of carbon monoxide, and 1.67 tons of nitrogen oxides per year to the park air basin. This is a reduction in emissions of about 40% over 2000 conditions, and a possible major benefit to local air quality.

Stationary sources of emissions similar to those from vehicles include boilers and diesel generators. These emissions would decrease under the No Action Alternative, both from 1998, when the

base was nearly fully occupied and from 2001, the year before it was turned over to NPS, as most buildings at the base would be placed in layup status. Only a few staff and program participants (1,800 per year) would actively occupy any of the base buildings; therefore heating requirements would be significantly lower. SO<sub>x</sub>, nitrogen oxides, carbon monoxide, and particulates associated with operation of the boilers would similarly decrease. The extent of this decrease is unknown; however, it is likely to be on the order of 90% less than even 2001 conditions, as only about 25 people would occupy the base buildings at any given time. Other stationary sources of air emissions include painting and vehicle maintenance activities, such as dispensing gasoline and the use of solvents and degreasers. With so few buildings actively used and so few staff on the base under the No Action Alternative, these emissions would also drop. The combined emissions from stationary sources at both Schoodic and Corea in some cases approach or exceed emissions from vehicles on Schoodic park property. A 90% decrease could approach a major localized (base-specific), and negligible or minor region-wide (southern end of the peninsula, for example) benefit in air quality.

As for indoor air quality, radon tests indicate mitigation systems installed in buildings 84, 184–186, and 191 have been successful (NSGA 2000). Some of these buildings may be used for staff or program housing in the No Action Alternative. Asbestos was removed from buildings 39, 138, and 148 prior to turning the base over to NPS. Twenty-two additional buildings which have less than 1% asbestos in them were not remediated by the U.S. Navy. Of these, 13 would be used by the park under the No Action Alternative. A negligible risk to human health may exist in occupying some of these buildings, particularly if asbestos is contained in the venting systems. However, the risk base-wide of occupying buildings is lower than when the U.S. Navy occupied the base because of mitigation systems.

**Cumulative Impacts** - Cumulative, or additive impacts indicate the extent of damage that is already ongoing at the site and information about past, present, and future trends. Impacts of the alternatives in this EIS are overlain on those from outside sources to give an idea of the

total impact a given resource is experiencing now or expected to experience in the future.

The Environmental Protection Agency has standards in place for several pollutants that will be emitted by vehicles and stationary sources at Schoodic. These include carbon monoxide, nitrogen oxides, sulfur dioxide (precursor to sulfates), and ozone.

Carbon monoxide is a gas that can be poisonous at high concentrations, and that is formed when fuels are not burned completely. It is produced primarily by vehicles. Nationally, carbon monoxide concentrations have declined over the last 20 years; in the region where the park is located (which includes all of Maine), concentrations have decreased by 81% since 1980. However, carbon monoxide concentrations in the East and in most urban areas of the county are still high. In Hancock County, they averaged between 28 and 55 tons/year/square mile in 1999. This is higher than other parts of Maine, but lower than the entire rest of the Atlantic Seaboard to the south (Environmental Protection Agency 1999). The Clean Air Act amendments of 1990 required oxygenation of gasoline to help fuels burn more completely; these and other changes are expected to help the United States continue its trend toward improvements in carbon monoxide concentrations.

Nitrogen dioxide is a reddish brown gas emitted from high-temperature combustion processes, such as in-vehicle engines and power plants. It and other forms of nitrogen oxides are called NO<sub>x</sub>. These compounds are associated with respiratory problems, and are instrumental in the formation of ozone, or smog. Few monitoring sites for nitrogen oxides have operated continuously for 20 years, so data are sketchy. However, two 10-year databases indicate that annual mean concentrations declined in the early 1980s, stabilized for the remainder of the decade, and continued to decline in the 1990s. Concentrations in Maine have decreased by an average of 34% since 1980. This is the second largest decrease in the country over this time period. Concentrations remain moderately high, at 3.36–6.24 tons/year/square mile, in Hancock County. This is higher than much of northern and northwestern Maine, which averages 0–1.72 tons/year/square mile, but lower

than the majority of New England, which averages 14.6 to over 2,000 tons/year/square mile. Although NO<sub>x</sub> concentrations have steadily decreased in the late 1990s, emissions have increased, primarily from heavy-duty diesel engines. Without the implementation of new emission standards for trucks, buses, and other large vehicles, NO<sub>x</sub> concentrations would likely begin to increase.

Ozone concentrations in the park and in Maine generally are highly influenced by pollutants emitted from industrial and mobile sources in the midwestern United States. Ground-level ozone is formed in the atmosphere by the reaction of volatile organic hydrocarbons and nitrogen oxides in the presence of heat and sunlight. It is the prime ingredient of smog, and prolonged exposure has been linked to a number of respiratory problems in people. Measurements have indicated an improvement in average daily maximum ozone concentrations at the park of 11 ppb/year, although enough variability exists that this trend is not statistically significant (NPS 2001). In addition, although the park has experienced improvement, its maximum daily 1 hour average ozone concentrations have exceeded the primary Environmental Protection Agency standard of 120 ppb 10 out of the 16 years from 1983 to 1998. Violations of the Environmental Protection Agency 8-hour standard decreased in Acadia National Park over the past 15 years, from an average of 6.0 during the years 1983-1992 to 2.7 during 1993-1998 (NPS 1999b).

Generally, Acadia National Park does not experience long-term exposure to ozone in high enough concentrations to obviously affect vegetation. The NPS has monitored foliar injury in a limited number of areas where the sum of hourly average ozone concentrations greater than or equal to 60 ppb (SUM60) during the growing season lies between 8 and 15 ppm-hours. Damage to foliage and growth loss, particularly in sensitive species, has been observed at these levels. However, SUM60 at the park ranges from 20 to 40 ppb-hours, and appears to be decreasing (NPS 1999b). Research has been completed to determine whether sensitive species might be experiencing impacts even at these levels.

Decreases in the number of vehicles in the park at Schoodic and the use of boilers or generators at the base that would occur under the No Action Alternative would contribute to decreases in ozone, but the effect would be so small as to be negligible. Creating bike lanes and encouraging the use of bikes instead of cars would add to the positive effect, but the use of buses would not, since diesel buses would contribute more nitrogen oxides than the cars they replace unless alternative fuel buses are used.

Standard visibility range at Acadia National Park varies from about 60 to 90 miles on good days (i.e., the 10% of days when visibility is at its best), and from 15 to 25 miles on poor visibility days (i.e., the 10% of days when visibility is at its worst), and averages 35 to 55 miles (NPS 1999b). The average visual range in 1999 for eastern parks was 14 miles on poor-visibility days (bottom 20%) and 50 miles on the clearest days (top 20%) (Environmental Protection Agency 1999). Although these figures are not exactly comparable, the visibility at the park tends on average to be better than for other eastern parks.

As with other eastern parks and wilderness areas monitored under the Interagency Monitoring of Protected Visual Environments (IMPROVE) program, Acadia National Park suffers from higher regional concentrations of precursors to sulfates and other man-made emissions, higher estimated regional background levels of fine particles, and higher average relative humidity than western parks. Sulfates, which account for the majority of light-extinction effects in the park, are particularly vulnerable to humidity, as they accumulate water and grow in size, becoming more efficient at scattering light (Environmental Protection Agency 1999). Because of these differences, degradation of visibility in eastern parks is more severe. For the period of 1990-1999, visibility on the clearest 20% of days in eastern parks was comparable to the haziest 20% of days in the west.

Visibility is generally best in the fall and worst during the summer months, which is also when

the majority of visitors are in the park. However, average summer visibility has improved slightly in the eastern United States from 1980 to 1995. Data from the late 1990s indicate this trend continued, as visibility on the typical and on the haziest 20% of days both showed a 10% improvement across all 10 eastern parks and wilderness areas measured in 1998–1999 (Environmental Protection Agency 1999). This improvement is due in large part to the decrease in sulfates. In 1999, eastern aerosol light extinction due to sulfates on the haziest days reached its lowest level of the 1990s, with a 19% decline from 1992 to 1999.

Visibility data at Acadia National Park collected for 1990–1999 indicate standard visual range in the park is also improving, particularly on clear days. Median visual range averaged between 35 and 45 miles in the early 1990s at the park, and improved to between 50 and 55 miles by the late 1990s, a 40% increase. Visual range on the clearest (10%) days averaged 65 to 70 miles in the early 1990s, and improved to between 80 and 90 miles in the late 1990s, a 25% increase. Standard visual range on the haziest (10%) days averaged between 18 and 20 miles in the early 1990s, and improved to 23–24 miles by the late 1990s, a 25% increase (NPS 2001).

Decreases in emissions associated with vehicle use at Schoodic and boilers on the navy base associated with the No Action Alternative would have a negligible, positive impact on visibility by reducing precursors to sulfates associated with boilers and hydrocarbons associated with both vehicles and stationary sources.

Decreases in sulfates may also have contributed to a reduction in the threat of acid precipitation in the park. In the years from 1982 to 1997, sulfates have decreased from an average of 22–23 kg/ha to 15–16 kg/ha. Nitrate deposition in rain and snow has remained approximately the same (NPS 1999b). Despite the reduction in sulfate deposition, the pH of rain and snow at the park has remained very nearly the same from 1981 to 1997, at about 4.5. While most park lakes and streams are non-acidic, they are also susceptible to acidification because they are largely unable to neutralize or buffer acidic inputs. These low-alkalinity lakes and streams are typical of the region, and are a function of

the bedrock and other factors outside park control. Alkalinity, or buffering capacity, is decreasing in park lakes as a result of acid deposition, and continues to decrease despite reductions in sulfate deposition. Additional research is ongoing at the park to better understand acidification in the park and its relationship to watershed processes, topography, and other features.

Decreases in emissions associated with vehicle use at Schoodic and boilers or generators on the navy base associated with the No Action Alternative would have a negligible positive impact on acid precipitation locally by reducing precursors to sulfates and nitrates.

**Conclusions** - Because this alternative would result in relatively little use of the base, air quality emissions associated with commuter traffic and on-base heating would be reduced compared to year 2001 conditions. The reduction in ambient concentrations of air pollution could be a moderate to negligible localized benefit, but would be negligible regionally. The use of bikes or buses could result in further negligible to minor benefits. These reductions would also have negligible relative cumulative effects on regional air quality problems attributable largely to sources outside the park, such as visibility, criteria pollutants, and acid precipitation. No actions anticipated in any of the alternatives would affect mercury concentrations. Therefore, since there would be no additive impact, no discussion of mercury concentrations will be included in this *EIS*. No impairment to park air quality would result from implementing the No Action Alternative.

### **Impacts of Alternative B: National Park Service Management**

**Analysis** - As with No Action, the primary impact to air quality on the Schoodic Peninsula from Alternative B would be from mobile sources. However, the impacts relative to conditions during the time the base was occupied by the U.S. Navy, even in 2001 when many functions and staff had already been closed out, would be beneficial for air quality.



Alternative B would result in about 30 staff working at what is now the base and about 13,500 annual program participants (Table 1, page 11). Most of the vehicle trips associated with program participants would take place during July–September. Although they would not be evenly dispersed, about 161,000 vehicle trips are considered a likely annual total for the Schoodic District by year 2015. These trips would add about 2.54 tons of hydrocarbons, 22.6 tons of carbon monoxide, and 1.73 tons of nitrogen oxides each year, or 38% fewer emissions than the 2001 base year, and between 3.6 and 4.5% greater than No Action. This is a major local benefit to air quality compared to the 2001 base year, and a minor localized, adverse impact compared to No Action.

About 30 staff and 13,500 program participants would occupy buildings at the base. Five smaller buildings are slated for removal and 15 additional buildings would either be used or removed. If all are either unoccupied or removed, this could result in about a 50% decrease in the need for heating from boilers. Even greater decreases are likely because fewer buildings would be occupied during the colder months of the year. A 50% decrease could approach a major localized (base-specific), and negligible or minor region-wide (southern end of the peninsula, for example) benefit in air quality.

Radon tests indicate mitigation systems installed in buildings 84, 184–186, and 191 have been successful. All of these buildings could be used for staff or program housing in this alternative. Asbestos was removed from buildings 39, 138, and 148 prior to turning the base over to NPS. Twenty-two additional buildings which have less than 1% asbestos in them were not remediated by the U.S. Navy. A negligible risk to human health may exist in occupying some of these buildings, particularly if asbestos is contained in the venting systems. This risk is slightly greater in Alternative B than No Action, because more buildings would be occupied.

**Cumulative Impacts** - A decrease in traffic and the use of boilers at Schoodic would contribute negligible beneficial impacts to those already ongoing and expected to continue with regards to visibility, ozone, acid precipitation, and

mercury concentrations in the atmosphere in the region. The extent of the reductions would be similar, but not quite as great, as under the No Action Alternative (please see No Action above for more information). The benefits would be too small to measure regionally.

**Conclusions** - Because this alternative would result in fewer vehicles and a less-intensive use of the base than under year 2001 conditions, air quality emissions associated with commuter traffic and on-base heating would be reduced. The reduction could be a major localized benefit compared to 2001 conditions, but would be negligible regionally. The use of bikes or buses could result in further negligible to minor benefits. These reductions would also contribute beneficially to regional air quality problems attributable largely to sources outside the park, such as visibility, ozone, and acid precipitation, although the degree would be too small to detect. Alternative B would result in minor increases in emissions compared to the No Action Alternative. No impairment to park air quality would result from implementing Alternative B.

#### **Impacts of Alternative C: Collaborative Management (Preferred)**

**Analysis** - As with the other alternatives, the primary impact to air quality on the Schoodic Peninsula from the preferred alternative would be from mobile sources. However, as with No Action, the impacts relative to conditions during the time the base was occupied by the U.S. Navy, even in 2001 when many functions and staff had already been closed out, would be relatively beneficial for air quality.

Alternative C would result in about 60 NPS and other staff working at what is now the base and about 31,500 annual program participants (see Table 1, page 11). As with other alternatives, most of the vehicle trips associated with program participants would take place during July–September. Although they would not be evenly dispersed throughout the year, it is estimated that about 170,000 vehicle trips would take place on the Schoodic Loop Road each year by 2015. These trips would add about 2.68 tons of hydrocarbons, 23.9 tons of carbon

monoxide, and 1.83 tons of nitrogen oxides each year, or 36% fewer emissions than the 2001 base year, and between 8.7 and 10.3% greater than No Action. This is a major local benefit to air quality compared to the 2001 base year, and a minor to moderate localized, adverse impact compared to No Action.

As for stationary sources, with 60 staff and 31,500 program participants there would be about a 30% decrease in the need for heating from boilers. Even greater decreases are likely because fewer buildings would be occupied during the colder months of the year. A 30% decrease could approach a major localized (base-specific), and negligible or minor region-wide (southern end of the peninsula) benefit in air quality.

As for indoor air quality, radon tests indicate mitigation systems installed in buildings 84, 184-186, and 191 have been successful. All of these buildings would be used for staff or program housing in this alternative. Asbestos has been removed from buildings 39, 138, and 148 prior to turning the base over to NPS. While building 138 may be removed, the buildings 39 and 148 would be used for classrooms, labs, office, or similar uses. Twenty-two additional buildings which have less than 1% asbestos in them were not remediated by the U.S. Navy. All of those in this group used in No Action would also be used by NPS in the preferred alternative. In addition, buildings 3, 39, 105, 148, and 184-191 would definitely be occupied. Others of this group, including buildings 138 and 165, may be used as well. A negligible risk to human health may exist in occupying some of these buildings, particularly if asbestos is contained in the venting systems. This risk is slightly greater in Alternative C than No Action or Alternative B, because more buildings would be occupied.

**Cumulative Impacts** - A decrease in traffic and the use of boilers at Schoodic would contribute negligible beneficial impacts to those already ongoing and expected to continue with regards to visibility, ozone, acid precipitation, and mercury concentrations in the atmosphere in the region. The extent of the reductions would be similar, but not quite as great, as under the No Action Alternative (please see No Action above

for more information) or Alternative B. The benefits would be too small to measure regionally.

**Conclusions** - Because this alternative would result in fewer vehicles and a less intensive use of the base than during the base year of 2001, air quality emissions associated with commuter traffic and on-base heating would be reduced. The reduction could be a major localized benefit compared to 2001 conditions, but would be negligible regionally. The use of bikes or buses could result in further negligible to minor benefits. These reductions would also contribute beneficially to regional air quality problems attributable largely to sources outside the park, such as visibility, ozone and acid precipitation, although the degree would be too small to detect. Alternative C would result in minor to moderate increases in emissions compared to the No Action alternative. No impairment to park air quality would result from implementing Alternative C.

## **WATER RESOURCES**

### **Impacts Common to All Alternatives.**

The degree of impact to water resources would change with each alternative. There are no impacts shared by all alternatives.

### **Impacts of Alternative A: No Action**

**Analysis** - The well, water treatment facility, and wastewater treatment capacity at the base are all designed to accommodate between 100 and 500 people (NSGA 2000). In 1997, the base employed about 500 military and civilian personnel. By 2001, this had declined to about 350 people. About 30,000 gallon per day (gpd) of treated wastewater and 25,000 gallons per day of sludge were discharged on average during 2001.

Implementing the No Action alternative would result in 5-25 people on the base at any one time (5 during the winter months, 25 during the summer). This is a 93-98% reduction in the use of the water-related facilities. Although it may make economic sense to continue to treat water

in batches using existing technology and facilities, it may be cheaper and more efficient to close the wastewater treatment facility and install a simple septic system. Regardless of whether NPS continues to operate both the water and wastewater treatment facilities as they are now, or install a simple septic system, the treated effluent, which is now discharged into Arey Cove between the east coast of Big Moose Island and the west shore of Little Moose Island, would be significantly reduced. A concomitant beneficial impact of unknown magnitude to the water quality of Arey Cove would follow. Given that the base discharged between 30,000 and 45,000 gallons per day (as much as 16 million gallons per year) of highly organic material into the cove for several years, the impact could have been a moderate or even major one to the cove's water quality. The benefit of reducing or eliminating the discharge could likewise be moderate or major.

The well supplying the base produces 100 gpm. Under the No Action Alternative, only 5–25 people would occupy the navy base at any given time. This is far less than even under the 2001 scenario for a downsized navy base. Impacts to the groundwater supply as a result would be beneficial, as although this well appears to be very productive, groundwater yields in the region are usually much lower. The extent of this benefit is unknown, but likely only negligible or minor compared to the volume of groundwater in the aquifer.

The Schoodic Peninsula has few streams and no defined hydrologic sub-basins. Frazer Creek drains year-round into Mosquito Harbor at the entrance to the park on Schoodic, but no perennial surface streams exist on Big Moose Island. Seeps, springs, and artesian springs are present on Big Moose Island, and contribute to the wet forests in some parts of the property.

Impacts to Frazer Creek or to the springs on the peninsula are unlikely from visitors or program participants under the No Action Alternative. The extent of such an impact is unknown; however, it is expected to be negligible. This is because the vast majority of visitors to the park engage in sightseeing from their cars, rather than hiking into the forests, particularly if no trails exist (Manning et al. 2002). Despite navy

personnel's use of the trails extending from the base, the impact to water elements in the study area from such activity are negligible. This is expected to continue even if staff or program participants visit sensitive areas since so few programs would take place at Schoodic under the No Action Alternative.

**Cumulative Impacts** - Examples of cumulative impacts on water resources in the study area would be those impacts visitors already exert on Frazer Creek, or outside influences on Arey Cove, the base well supply, or wastewater treatment facilities. No outside influences on these localized water resources are known; some loose soil or grease, oil, or petroleum products from cars crossing into the park or parked at the Frazer Creek parking lot may wash into Frazer Creek during rainstorms or spring snowmelt. These impacts have not been monitored or measured, but are assumed to be negligible.

**Conclusions** - Reductions in the number of people using base infrastructure, such as drinking water and wastewater treatment, resulting from the implementation of the No Action Alternative, is expected to have a negligible to minor beneficial impact to groundwater supplies, and an unknown, but possibly moderate benefit to water quality in Arey Cove. Negligible to minor impacts to springs, seeps, or to Frazer Creek are possible from erosion of soils or petroleum products from vehicles. No impairment to any water resource feature in the study area would likely occur.

#### **Impacts of Alternative B: National Park Service Management**

**Analysis** - Implementing Alternative B would result in 30 staff using the base during the bulk of the year, and as many as 150 additional program participants/day during the summer months. This is nearly 60% fewer people on base, even when the Schoodic Education and Research Center is at full capacity, and a 90% decrease during the winter months. This averages out to about 80–85% less well water or wastewater treatment required than during 2001 under the U.S. Navy's annual operation of the base. Discharge of treated wastewater to Arey Cove will be reduced by the same 80–85%. As

noted above under No Action, the base discharged between 30,000 and 45,000 gallons per day (as much as 16 million gallons per year) of highly organic material into the cove for several years. The impact of such a practice on the water quality in the cove is unknown, but could have been moderate or even major. The benefit of reducing the discharge by 80–85% could likewise be moderate or major. The volume of wastewater discharged to Arey Cove under Alternative B would be on average 15% higher than under the No Action Alternative, an unknown, but possibly moderate adverse impact on water quality in the cove.

Under the No Action Alternative, only 5–25 people would occupy the base at any given time. Implementing Alternative B would increase this to as many as 180 people, a six-fold increase in demand for well water. Compared to No Action, this increase could have an adverse impact on the supply of groundwater. Given that yields have been high even when the base was occupied by 500 people, the extent of this impact is expected to be negligible or minor compared to the apparent volume of groundwater in the aquifer.

Impacts to Frazer Creek or to the springs on the peninsula from visitors or program participants are more likely under this alternative than No Action. The extent of such an impact is unknown, and is dependent in large part upon how accessible these features become to visitors. Water quality could experience some increase in turbidity as a result of visitors hiking in the area or upslope of seeps and springs. If NPS monitors these water features and stops field trips or closes off areas when impacts are noticeable, it will prevent them from becoming more than negligible. If this is not the case, the impact of many hikers or program participants on water quality in these springs could be minor or even moderate compared to the No Action Alternative.

**Cumulative Impacts** - Cumulative impacts would be the same as for the No Action Alternative.

**Conclusions** - Reductions in the number of people using base infrastructure compared to when the U.S. Navy occupied the base would

have benefits for water quality in Arey Cove and for groundwater supplies. However, this alternative would result in adverse impacts to these resources compared to the No Action Alternative. The extent of these impacts is unknown, but could be a moderate impact to Arey Cove water quality and a negligible to minor impact to groundwater resources. Negligible to minor impacts to springs, seeps, or to Frazer Creek are possible from erosion of soils or petroleum products from vehicles. No impairment to any water resource feature in the study area would occur.

### **Impacts of Alternative C: Collaborative Management (Preferred)**

**Analysis** - Implementing Alternative C would result in 60 staff using the base during the bulk of the year, and as many as 350 additional program participants/day during the summer months. This is about 15% more people on the base than during 2001 (but 20% fewer than when the base was at full operation in 1998) during three months of the year, and 80% fewer during the remainder of the year. This averages out to about 55% less well water or wastewater treatment required than during 2001 under the U.S. Navy's annual operation of the base. Discharge of treated wastewater to Arey Cove will be reduced by the same 55%. As noted above under No Action, the base discharged between 30,000 and 45,000 gallons per day (as much as 16 million gallons per year) of highly organic material into the cove for several years. The impact of such a practice on the water quality in the cove is unknown, but could have been moderate or even major. The benefit of reducing the discharge by 55% compared to 2001 conditions could be minor or moderate. The volume of wastewater discharged to Arey Cove under Alternative C would be on average 40% higher than under the No Action Alternative, an unknown, but possibly moderate to major adverse impact on water quality in the cove.

Under the No Action Alternative, only 5–25 people would occupy the base at any given time. Implementing Alternative C would increase this to as many as 410 people, a 15-fold increase in demand for well water. Compared to No Action, this increase could have an adverse impact on the supply of groundwater. Given

that yields have been high even when the base was occupied by 500 people, the extent of this impact is expected to be negligible or minor compared to the volume of groundwater in the aquifer.

Impacts to Frazer Creek or to the springs on the peninsula from visitors or program participants are much more likely under this alternative than No Action. The extent of such an impact is unknown, and is dependent upon the accessibility of these features to program participants and visitors, and the degree of control NPS exerts on its partners. Because water features are popular, water quality could experience some increase in turbidity as a result of visitors hiking in the area or upslope of seeps and springs. If NPS monitors these water features and stops field trips or closes off areas when impacts are noticeable, it will prevent them from becoming more than negligible. If this is not the case, the impact of many hikers or program participants to water quality in these springs could be moderate or even major compared to the No Action Alternative.

**Cumulative Impacts** - Cumulative impacts would be the same as for the No Action Alternative.

**Conclusions** - Reductions in the annual number of people using base infrastructure compared to when the U.S. Navy occupied the base would have benefits for water quality in Arey Cove and for groundwater supplies. However, this alternative would result in adverse impacts to these resources compared to the No Action Alternative. The extent of these impacts is unknown, but could be a moderate or major impact to Arey Cove and negligible to minor impact to groundwater resources. Negligible to minor impacts to springs, seeps, or to Frazer Creek are possible from erosion of soils or petroleum products from vehicles. No impairment to any water resource feature in the study area would occur.

## **SOILS**

### **Impacts Common to All Alternatives**

Human activities, such as hiking, fishing, sight-seeing, etc., can all have an impact on soil. The impacts can be numerous, and include loss of the surface organic layers, compaction, reduction in porosity and infiltration rates, and increases in erosion (Cole and Landres 1995). These types of impacts occur to a greater degree where human use is more evident, such as along trails. While NPS builds and maintains its trails to certain standards, social trails are undesignated paths created by persistent visitor use. Many of these social trails exist on Little Moose Island, and all alternatives include their revegetation. Doing so would stabilize a small amount of soil, perhaps one to two acres, that is now actively eroding, a minor localized benefit. All alternatives also include the creation of an additional 0.75 mile of trail on Little Moose Island, a negligible to minor adverse impact to soils on the island. All alternatives also include controlling visitor use in critical habitats to protect resources. These restrictions may reduce soil erosion, both on and off trails, a positive impact of unknown magnitude.

### **Impacts of Alternative A: No Action**

**Analysis** - Soils would be affected outside of the former navy base property primarily by foot traffic. Since most of the visitor destinations or scenic pull-offs are paved or on rock, they would not be subject to erosion. However, all of the trails between Schoodic Head and the shoreline or from the base to the coast slope downward. In addition, visitors have created social trails on Little Moose Island and on the former navy base in the vicinity of the Sundew Trail, which leads from the base to a rocky intertidal coastline on the west side of Big Moose Island. The slope from Schoodic Head is quite steep, and a recent survey of visitors to the peninsula indicated the majority of hikers find the degree of environmental damage on those trails, including soil loss, to be a minor or moderate problem.

About 20–25% of visitors to the Schoodic District surveyed recently by NPS (NPS 2001,

NPS 2002) indicated that they hiked with more than 80% of those reporting using trails originating on Schoodic Head. This same survey asked the hikers two questions about environmental impact they saw. Using a series of five photos illustrating increasingly severe impacts, such as erosion, widening, and loss of vegetation, they first asked which photo showed the highest level of environmental impact NPS should allow on trails. Nearly half picked photo 2, and another quarter picked photo 3. They also asked which level of impact they typically saw on Schoodic trails during the day they were contacted for the study. Nearly 60% chose photo 2. This means many visitors, and perhaps a majority of them, find impacts to soils and vegetation on Schoodic's trails to already be at the limit of acceptability.

While this alternative could also result in some impacts from program participants to soils at existing park facilities and trails, it is likely to be comparatively less than under 2001 conditions. This is because the number of people on the base will be significantly reduced over 2001 conditions, and impacts associated with their use of trails leading from the base to the coast, or social trails on and off the base, will also be reduced. This alternative would add about 1,800 program participants and staff to the current visitation (Table 1, page 11). This is about 3% more visitors than if the base was not used for educational purposes, with resulting negligible additional impact to soils along trails possible. However, visitor surveys indicate nearly 45% of base personnel used the park facilities (roads, trails, picnic areas, etc.) several times a month to several times a week, and of those 40–50% walked, hiked, or jogged on park trails. Assuming this sample (103 participants) is valid for all base personnel, base closure would remove about 70–75 people from regular use of the trails. Alternative A would add a maximum of 20 program participants per day, and many may not use the trails at all. Assuming existing 20–25% use of trails by visitors, 4–5 program participants on average might use the trails during summer months. This is an 85–90% decrease in use from 2001 conditions, with possible minor benefits to soils along these trails.

This alternative is also likely to result in a comparative decrease in impact to soil on the Sundew Trail, again because the number of people on the base will be significantly reduced over 2001 conditions, and impacts associated with their use of trails leading from the base to the coast, or social trails on the base between buildings, will also be reduced. During the period of time the base was used by the U.S. Navy, 350–500 personnel had access to these trails, and a large portion (probably more than the 45% using park trails) may have used them for exercise or sightseeing (Manning et al.). Alternative A would result in only 20 people per day on the base maximum, and simply from a human use standpoint, a possibly large-scale reduction in the use of these trails. The present condition of the trails would deteriorate more slowly, leading to a minor positive impact relative to the continuation of the U.S. Navy's use of the base.

The reduced use of the base may have similar benefits for other base soils as well, particularly if base personnel used some areas for exercise or moving between buildings, resulting in soil compaction or erosion. The extent of these impacts is unknown, but likely to be negligible.

The No Action Alternative would not result in the removal of any of the buildings on the base or the restoration of vegetation. Therefore, none of the 30 acres already cleared to build the base would be revegetated (i.e., no change would take place from 2001 conditions as it would in other alternatives).

Activities associated with fuel storage or refueling, vehicle maintenance, or the storage or use of hazardous chemicals or hazardous wastes would be significantly reduced or even eliminated under NPS ownership. Therefore, the potential for soil contamination would also be eliminated or reduced. This is a minor or moderate localized benefit of the No Action Alternative compared to the 2001 base year, and a negligible to minor benefit to soils in the study area.

**Cumulative Impacts** - Soils have historically been disturbed or removed to accommodate day use at Schoodic, and to build trails, roads, and buildings, including those at the base. The trails

from Schoodic Head include one that is a part of a road constructed in the 1880s; therefore even early vehicle traffic has contributed to soil loss in the study area. In addition, because most of the drainages in the area are short and steep and soils are thin, natural erosion occurs during rainstorms or snowmelt.

Visitation would continue to increase slowly over the 10–15-year time frame of the plan by about 1% per year. Over 15 years, this could mean an increase in use of trails and park facilities of about 15%, with resulting adverse impacts to soils, particularly on existing trails in the park between Schoodic Head and the coast. Since erosion of trails is already considered a moderate impact by about half the visitors to the peninsula now, an increase in use with no other changes would be likely to worsen this perception. Either more visitors would see the impact as moderate, or some portion would now view it as a major problem for soils and vegetation.

**Conclusions** - Increases in visitation to the peninsula unrelated to the reuse of the base would add impacts to ongoing erosion of some trails in the study area, and increase impacts from moderate to major. These trails have been used historically as roads in some cases, and have been available to hikers for decades, resulting in fairly serious losses of soils from erosion. These losses would be somewhat mitigated by the reductions in use attributable to base closure by the U.S. Navy, but worsened slightly by program participant use. These latter two factors could result in a net minor positive impact on soils at park trails. Relative reductions in the use of trails on the base compared to 2001 conditions could bring minor benefits to soils along these trails as well. A minor to moderate localized benefit to soils from reductions in fuel storage, refueling, and the storage and use of hazardous materials relative to 2001 conditions is also likely. No impairment to soils in the study area would occur.

#### **Impacts of Alternative B: National Park Service Management**

**Analysis** - Implementing Alternative B could result in noticeable additional localized impacts on existing trails or at locations where visitors

are most likely to stop compared to both existing conditions in 2001 and to the No Action Alternative. Trails leading from the base to the shore, and trails between Schoodic Head and the coast, would both be attractive to program participants seeking to learn about the natural resources of the area or to experience the natural quiet and scenery. The impacts of program use on existing trails are not expected to be more than negligible or minor compared to No Action, but may increase the overall degree of localized impact ongoing now from moderate to major. The impact of trail use overall to soils in the study area is negligible.

Programs may include hiking off the trails, which in some cases could result in the erosion of soils, particularly on steep or sparsely vegetated slopes. Impacts to soils from this activity are not expected to be more than negligible, particularly since hikes would be led by park staff who would monitor for resource damage.

The social trails that lead from the base to the shoreline would be consolidated into one or two, and linked to existing trails. Soils on unused trails would then be restored and replanted. The Sundew Trail would be improved to NPS standards, reducing erosion compared to that on the more random series of trails leading from the former navy base. Erosion from trails as a result of this consolidation and adherence to standards could result in minor to moderate reductions compared to the No Action Alternative. Overall, the effects of more intensive use of the existing park trails, and consolidation and restoration of trails leading from the base, may nearly cancel each other out, resulting in negligible increases or decreases in erosion from trails compared to the No Action Alternative.

Alternative B would result in the removal of 10 buildings on the base and the revegetation of about 40 acres of disturbed landscape. This is an approximate 40–50% improvement over No Action, and a major localized benefit to soils on the base. It is a negligible to minor benefit to soils over the entire study area.

As under No Action, activities associated with fuel storage or refueling, vehicle maintenance, or the storage or use of hazardous chemicals or hazardous wastes would be significantly

reduced or even eliminated under NPS ownership. Therefore, the potential for soil contamination would also be eliminated or reduced. This is a minor to moderate localized benefit of this alternative, compared to the 2001 base year, but is the same as the No Action Alternative.

**Cumulative Impacts** - Cumulative impacts under this alternative would be the same as for No Action.

**Conclusions** - Increases in erosion on trails associated with more intensive use would be partially or fully offset by removing some trails, and rehabilitating the remainder. Negligible beneficial or adverse impacts to soil from erosion on trails relative to No Action are possible. Between 40% and 50% of soil removed to build at the base would be restored, a major localized benefit to base soils. Spills of fuels and other contaminants would be reduced from 2001 conditions, a minor to moderate localized benefit to soils at the base, but impacts would be neither beneficial nor adverse compared to No Action.

No impairment to park soils would occur.

#### **Impacts of Alternative C: Collaborative Management (Preferred)**

**Analysis** - Implementing Alternative C is likely to result in larger increases in trail use, as well as hiking through the forests or other vegetation, compared to all other alternatives. Trails leading from the base to the shore, and trails between Schoodic Head and the coast, would be attractive to program participants seeking to learn about the natural resources of the area or to experience the natural quiet and scenery. Erosion on these trails is already considered a problem by many visitors. The impacts of adding program use on existing trails are not expected to be more than minor compared to No Action, but may increase the overall degree of localized impact ongoing now from minor or moderate to moderate or major. The impact of trail use to soils in the study area is negligible or minor.

Hiking off the trails may increase without strict NPS oversight of programming, which could result in the erosion of soils on steep or sparsely

vegetated slopes. Impacts to soils in the area (and not on trails) could range from negligible to minor before park staff are aware that damage is occurring and corrective measures are required.

Adherence to trail standards could result in minor to moderate reductions compared to the No Action Alternative. Overall, the effect of more intensive use of the existing park trails, and consolidation and revegetation of trails leading from the base may nearly cancel each other out, resulting in negligible to minor increases in erosion from trails compared to the No Action Alternative.

Alternative C would result in the removal of 10 buildings on the base and the accompanying revegetation of about 16 acres of disturbed soils. This is an approximate 15–20% improvement over No Action, and a moderate localized benefit to soils on the base. It remains a negligible benefit to soils over the entire study area.

As under No Action, activities associated with fuel storage or refueling, vehicle maintenance, or the storage or use of hazardous chemicals or hazardous wastes would be significantly reduced or even eliminated under National Park Service ownership. Therefore, the potential for soil contamination would also be eliminated or reduced. This is a minor to moderate localized benefit of this alternative compared to the 2001 base year, but has no impacts, positive or negative, compared to No Action.

**Cumulative Impacts** - Cumulative impacts under this alternative would be the same as for No Action.

**Conclusions** - Increases in erosion on trails associated with more intensive use would be partially offset by removing some trails, although minor adverse impacts from erosion related to increased program participant use compared to No Action are likely. Between 15% and 20% of soil removed to build at the base would be restored, a moderate localized benefit to base soils. Spills of fuels and other contaminants would be reduced from 2001 conditions, a minor to moderate localized benefit to soils at the base, but impacts would be neither beneficial nor adverse compared to No Action. No impairment to park soils would occur.



## **VEGETATION**

### **Impacts Common to All Alternatives**

All alternatives include the inventorying and monitoring of natural and cultural resources, and the use of this information along with studies to determine acceptable visitation over time. They also all include possible controls on visitor use in important vegetative communities to protect those resources from the impacts of visitors. These measures may include signs, information packets, the requirement for permits to enter, or the partial or complete closure of areas to visitation. Candidates for the special application of protective measures and the protected natural area subzone include the Jack Pine Woodlands, the western side of Little Moose Island where rare plants grow, and wetlands. These measures could dramatically improve conditions at some of these communities, particularly on Little Moose Island. For others, where conditions are relatively undisturbed, controlling or preventing future human disturbance might result in minor to moderate localized benefits for vegetation.

In addition, regardless of the alternative, NPS will revegetate existing social trails on Little Moose Island, and create a 0.75-mile trail to allow the public access without further degrading the vegetation that exists on the island. Little Moose Island hosts two species of state listed rare plants and a "Rare or Exemplary Natural Community" (i.e., Maritime Shrubland). The fragile vegetation is threatened with loss on some parts of the island from trampling by visitors because there is not a designated trail. Creating a clearly marked trail and blocking off and restoring existing social trails on the island could have a major local beneficial impact to the patches of rare plants and coastal headland vegetative community on Little Moose Island. NPS will survey the trail route to ensure no rare plants would be adversely affected; however, there may be some impacts while making trail improvements. This is a negligible impact to vegetation in the study area.

All alternatives also include the application of general park policies to control invasive plant species and to encourage the growth of native species where it is appropriate or practical. At

this time, none of the 75 species of non-native plants in the study area are considered common or aggressive enough to pose a significant threat to native plants species or plant communities (Mittlehauser et al. 1995). These policies therefore have no impact on vegetation to date. However, NPS monitors for aggressive species, such as purple loosestrife, and monitoring and controlling it may have some small benefit in the future for the freshwater wetlands at Schoodic.

All alternatives include a proposed conservation easement on all or part of the 1,600-acre privately owned tract between the Schoodic District's northern boundary and State Route 186 in Winter Harbor. A conservation easement could prohibit or limit the development of this land. This could be a minor to major benefit to forest vegetation on the peninsula depending on the future use of the property without park protection.

All alternatives also involve the removal of some unused structures in the study area, such as perimeter fencing. Revegetation of these few acres would provide a negligible benefit to vegetation in the study area, but could provide a minor or even moderate benefit to vegetation locally.

### **Impacts of Alternative A: No Action**

**Analysis** - Visitation would continue to increase slowly over the 10–15 year time frame of the plan by about 1% per year. Over 15 years, this could mean an increase in use of trails and park facilities of about 15%, with resulting adverse impacts to vegetation, particularly on existing trails in the park between Schoodic Head and the coast. These impacts would result in part from crushing, shearing, and uprooting vegetation, as well as soil compaction, reduced infiltration rates, and erosion associated with foot traffic. All of these adversely affect the germination, establishment, growth, and reproduction of plants. Since impacts to trails are already considered a minor to moderate impact by about half the visitors to the peninsula now, an increase in use with no other changes would likely worsen this perception. Either more visitors would see the impact as moderate, or some portion would now view it as a major problem for soils and vegetation.

While this alternative could result in some impacts from program participants to vegetation at existing park facilities (including trails leading from Schoodic Head), it is likely to be comparatively less than under 2001 conditions. This is because the number of people on the base will be significantly reduced over 2001 conditions, and impacts associated with their use of trails leading from the base to the coast, or pathways (social trails) on the base between buildings will also be reduced. This alternative would add about 1,800 annual program participants and staff to the existing visitation. This is about 3% more visitors than if the base was not used for educational purposes, with resulting negligible additional impact to vegetation along trails possible. However, visitor surveys indicate nearly 45% of base personnel used the park facilities (roads, trails, picnic areas, etc.) several times a month to several times a week, and of those 40–50% walked, hiked, or jogged on park trails. Assuming this sample (103 participants) is valid for all base personnel, base closure would remove about 70–75 people from regular use of the trails. Alternative A would add a maximum of 20 program participants per day, and many may not use the trails at all. Assuming existing 20–25% use of trails by visitors, 4–5 program participants on average might use the trails during summer months. This is an 85–90% decrease in use from 2001 conditions, with possible moderate benefits to vegetation along these trails.

Perhaps the most important benefit to vegetation will be the reduced use of the 1-mile Sundew Trail and social trails between the base and the coastline. These trails lie on the westerly side of Big Moose Island through coniferous forest and spray zone vegetation on park property. During the period of time the base was used by the U.S. Navy, 350–500 personnel had access to these trails. Although park visitors could also use the Sundew Trail, apparently not many were aware of it and visitor use was relatively rare (NPS staff, personal communication, October 2002). Under Alternative A, visitor use of the former base is expected to be relatively low, and simply from a human use standpoint, this change could result in a reduction in the use of these particular trails compared to 2001 conditions. Although it is unknown whether the trails received extensive use, or

whether reducing use would restore vegetation they provide access to a fragile natural area where human use should be limited. Adopting Alternative A would provide moderate benefits.

The relative reduction in use of the base may have benefits for other vegetation as well, allowing native plants to become reestablished in areas used for exercise and for moving between buildings. However, if these areas are not monitored, non-native weedy vegetation could grow as well. The extent of these impacts is unknown, but likely to be negligible.

Vegetation has been lost as a result of building on the base, and no restoration of habitat is planned for this alternative; i.e., impacts would not change from existing conditions in this regard.

**Cumulative Impacts** - Vegetation has historically been disturbed or removed to accommodate visitor use at Schoodic by building trails, roads, parking lots, and restrooms. The trails from Schoodic Head include one that is a part of a road constructed in the 1880s; therefore, even early vehicle traffic has contributed to loss of vegetation in the study area. Ongoing visitor use of these trails continues to result in some loss of soils and vegetation. According to a recent poll of visitors, nearly half found the loss of soils and vegetation on these trails at least a minor impact. Compared to existing vegetation over the entire study area, these changes and ongoing impacts have had a minor to moderate adverse impact.

**Conclusions** - Identifying acceptable visitation over time and providing information through signs, brochures, and other means to protect sensitive or rare vegetation from visitor use could result in major localized benefits for vegetation compared to existing conditions on Little Moose Island, and minor to moderate benefits in other currently less disturbed vegetative communities. Creating a clearly marked trail and blocking off and revegetating existing social trails on the island could have additional major local, beneficial impacts to the patches of rare plants and coastal headland vegetative community on Little Moose Island. Continuing monitoring for invasive plants and the application of existing park policies to their control may have

some small benefit in the future for the freshwater wetlands at Schoodic. Acquisition of a conservation easement on property to the north of the park could provide a minor to major benefit to peninsula forests by preventing future harvesting of trees. Removal of unused structures, such as perimeter fencing, could provide a minor or even moderate benefit to vegetation locally.

Increases in visitation over the life of the plan will increase impacts to vegetation along some trails from moderate to major for a greater number of hikers. Program participants will add some negligible use to Schoodic Head trails, but reductions related to base closure could result in overall relative moderate benefits to vegetation along these trails compared to 2001 conditions.

No change in the loss of vegetation associated with buildings on the base would occur; however, the reduction in the use of the Sundew and other trails originating on the base could have local benefits of unknown magnitude to vegetation along the trail routes. No impairment to park vegetation would occur if this alternative were selected.

#### **Impacts of Alternative B: National Park Service Management**

**Analysis** - As with No Action, visitation would continue to increase slowly over the 10–15 year time frame of the plan by about 1% per year. Over 15 years, this could mean an increase in use of trails and park facilities of about 15%, with resulting adverse impacts to vegetation, particularly on existing trails in the park between Schoodic Head and the coast. These impacts would result in part from crushing, shearing, and uprooting vegetation, as well as soil compaction, reduced infiltration rates, and erosion associated with foot traffic. All of these adversely affect the germination, establishment, growth, and reproduction of plants. Since impacts to trails are already considered a minor to moderate impact by about half the visitors to the peninsula now, an increase in use with no other changes would likely worsen this perception. Either more visitors would see the impact as minor or moderate, or some portion would now view it as a major problem for soils and vegetation.

As with the No Action Alternative, while Alternative B does add program participants to the base who are likely to use park facilities, including trails to and from Schoodic Head, it may be that fewer of these program participants would use these facilities than did navy personnel. Alternative B would bring about 13,500 annual program participants and staff to the area, or about 150 per day. Assuming 25% of them use park facilities, an average of 35–40 per day would make regular use of the trails and facilities. This is about half of what occurred when the U.S. Navy operated the base. Compared to No Action, this is an 85–90% increase in use, with possible minor to moderate localized impacts to vegetation along trails and at other park facilities. However, trails leading from the base to the shore, and trails between Schoodic Head and the coast, would both be attractive to program participants seeking to learn about the natural resources of the area or to experience the natural quiet and scenery. Many more program participants than the average 25% of visitors to the area may use them, resulting in more severe impacts to vegetation.

As noted in the analysis of Alternative A, trail use will be limited in fragile natural areas to reduce impacts to vegetation.

Assuming restricted use, the application of NPS standards, and the revegetation of social trails, the impact of program use on the Sundew Trail would be offset and no more than negligible. However, since NPS standards are already applied to trails leading from Schoodic Head, directed use and an increase in use by 85–90% or more compared to No Action could result in moderate or even major localized adverse impacts to the trails' vegetation. The impact of trail use to vegetation in the entire study area is negligible.

The addition of programs and program participants to the area could also have adverse impacts on vegetative communities on the peninsula. Because these communities are unusual, they make excellent areas of study for those seeking to learn about the natural history of the peninsula. Targeted use of these special communities, such as jack pine, northern white cedar seepage forest, or freshwater wetlands could result in inadvertent trampling of the understory or of rare plants themselves, as well as soil erosion and resultant loss of vegetation.

The same is true for rare plant species, such as some bryophytes or arctic-maritime species, which occur sporadically on Big Moose Island and in greater abundance on Little Moose Island. Since no trails exist to most of these communities, students may need to hike across vegetated ground to access them, again resulting in inadvertent trampling and destruction of the understory. The extent of such an impact is unknown, and could range from negligible to moderate in intensity. Specific impacts would depend on the frequency of use and vulnerability of the plants to trampling and soils to erosion. In general, plants that are either very small or very large, grow flat or in dense tufts, have tough or flexible leaves, grow rapidly or produce many seeds, or are annuals are more resistant to trampling (Cole and Landres 1995). At low levels of disturbance, some vegetation may actually increase in species diversity as well as the complexity of vertical structure (by creating canopy openings, for example). However, at moderate or higher levels of disturbance, vegetation at moderate height is often stripped, and vulnerable ground cover destroyed. Biomass, species diversity, and complexity of vertical structure are all reduced.

Alternative B would result in the removal of 10 buildings on the base and the revegetation of about 40 acres of disturbed land. This is a 40–50% improvement over No Action, and a major localized benefit to vegetation on the base. It is a minor (1–10%) benefit to vegetation over the entire 2,366-acre study area.

**Cumulative Impacts** - Cumulative impacts would be the same as for No Action.

**Conclusions** - Impacts identified in the "Conclusions" section above under No Action and resulting from activities common to all alternatives would apply to Alternative B as well. These include benefits associated with identifying acceptable visitation over time, revegetating existing social trails on Little Moose Island, application of NPS policies regarding invasive plants, possible acquisition of a conservation easement on property to the north of the park, and the removal of unused structures, such as the perimeter fencing. Increases in visitation over the life of the plan would remain the same, resulting in the same impacts to vegetation along park trails.

Assuming similar use patterns by program participants as other visitors, trails to and from Schoodic Head and elsewhere in the Schoodic District would experience minor to moderate localized impacts compared to No Action. Directed program use could increase impacts to moderate to major. Impacts to the Sundew Trail could be offset to negligible by revegetating social trails, applying trail building and maintenance standards, and limiting use.

The addition of programs and program participants to the area could also have adverse impacts ranging from negligible to locally major on vegetative communities on the peninsula from students hiking through or to them for learning purposes. A major localized benefit to vegetation on the base from removing buildings is likely. No impairment to park vegetation would occur if this alternative were selected.

### **Impacts of Alternative C: Collaborative Management (Preferred)**

**Analysis** - As with No Action, visitation would continue to increase slowly over the 10–15-year time frame of the plan by about 1% per year. Over 15 years, this could mean an increase in use of trails and park facilities of about 15%, with resulting adverse impacts to vegetation, particularly on existing trails in the park between Schoodic Head and the shoreline. These impacts would result in part from crushing, shearing, and uprooting vegetation, as well as soil compaction, reduced infiltration rates, and erosion associated with foot traffic. All of these adversely affect the germination, establishment, growth, and reproduction of plants. Since impacts to trails are already considered a minor to moderate impact by about half the visitors to the peninsula now, an increase in use with no other changes would likely worsen this perception. Either more visitors would see the impact as minor or moderate, or some portion would now view it as a major problem for soils and vegetation.

Alternative C would add an average of 350 program participants and staff per day. Although this is similar to the numbers of navy personnel occupying the base, it is likely that a higher percentage of these participants would use the trails and other park facilities.

Assuming only 20–25% use the facilities (similar to other visitors and to 2001 base personnel), 75–85 program participants would regularly use park trails. This is a 90+% increase over No Action with associated minor to major localized impacts to trail and other park facility vegetation.

As noted in the analysis of Alternative B, trail use will be limited in fragile natural areas to reduce impacts to vegetation.

Applying appropriate trail building and maintenance standards to the Sundew Trail could reduce erosion and associated loss of vegetation. Assuming limited use, the application of NPS standards, and the revegetation of social trails, the impact of program use on the Sundew Trail is likely to be negligible. However, since NPS standards are already applied to trails leading from Schoodic Head, an increase of use by more than 90% compared to No Action could result in major adverse impacts to the trails' soils and vegetation. Guided use may reduce impacts to moderate, but mitigation in the form of closures, replanting, erosion control, and other actions would be required to reduce impacts further. The impact of trail use to vegetation in the entire study area is negligible.

The addition of this many program participants to the area could also have adverse impacts on vegetative communities on the peninsula. While the types of impacts described above in Alternative B to vegetation, such as shearing, trampling, and soil changes resulting in indirect losses of vegetation, would remain the same, the magnitude could increase. Again as in Alternative B, the vegetation between the base and these communities would be at risk. Because the disturbance may be moderate, decreases in biomass, vertical complexity, and species diversity are possible. The degree of impact is unknown. It could range from negligible to major, and depends on the susceptibility of the vegetation itself and the degree of use. Mitigation measures NPS might explore to lessen impacts to this particular vegetation include restricting access, or building a trail to access plant communities that students particularly are interested in studying. While restricting access would reduce or eliminate the impact, building a trail would require the

removal of some vegetation with resulting minor adverse impacts. A trail would also be likely to increase use of these sensitive areas by encouraging general visitor use of such a trail. It would prevent further destruction of vegetation from "cross-country" travel, however. Because these impacts would be localized, there is no threat of impairing park vegetation as a result of implementing Alternative C.

Alternative C would result in the removal of 10 buildings on the base and the revegetation of about 16 acres of disturbed land. This is an approximate 15–20% improvement over No Action, and a moderate localized benefit to vegetation on the base. It is a negligible benefit to vegetation over the entire study area.

**Cumulative Impacts** - Cumulative impacts would be the same as for No Action.

**Conclusions** - Impacts identified in the "Conclusions" section above under No Action and resulting from activities common to all alternatives would apply to Alternative C as well. These include benefits associated with identifying acceptable visitation over time, revegetating existing social trails on Little Moose Island, application of NPS policies regarding invasive plants, possible acquisition of a conservation easement on property to the north of the park, and the removal of unused structures, such as the perimeter fencing. Increases in visitation over the life of the plan would remain the same, resulting in the same impacts to vegetation along park trails.

Assuming similar use patterns by program participants as other visitors, trails to and from Schoodic Head and elsewhere in the Schoodic District would experience minor to major localized impacts compared to No Action. Directed program use could increase impacts to major.

Mitigation, including closures, erosion control, and replanting would reduce impacts. Impacts to fragile areas like the Sundew Trail could be offset to negligible by revegetating social trails, applying trail building and maintenance standards, and limiting use.

Localized negligible to major impacts, depending on the susceptibility of the vegetation and

the degree of use, could result from program participants accessing sensitive areas of the site, so such use would be monitored and mitigated as necessary.

No impairment to park vegetation would occur if this alternative were selected.

## **COASTAL RESOURCES**

### **Impacts Common to All Alternatives**

The study area includes sensitive intertidal areas, as well as additional brackish or saltwater wetlands. Visitor use to these areas could reduce biological diversity through trampling by foot traffic, harvesting of intertidal organisms for food, fish bait, aquariums, etc., and through the removal of rocks and other materials such as dead shells that serve as habitat for many invertebrates (Adessi 1995, Murray et al. 1999). Despite a lack of quantitative data, these actions are generally considered responsible for serious declines in the biological diversity of rocky intertidal organisms, particularly in high growth areas, or areas where no restrictions, information, or protection for these organisms exists (Murray et al. 1999).

At this time, visitor use of any of these intertidal areas is quite low; however, all alternatives include the inventorying and monitoring of natural resources, and the use of this information along with studies to determine acceptable visitation over time. They also all include the application of zoning and the control of visitor use in fragile areas to protect resources in those areas from the impacts of visitors. These measures may include signs, information packets, the requirement for permits to enter, or the partial or complete closure of areas to visitation.

Inventorying or monitoring these sites to record changes and take needed steps to prevent damage from overuse may be critical in maintaining them in their present state, and could provide minor to moderate benefits in this regard.

Inventorying, monitoring, and possible restrictions may also benefit coastal wildlife in the study area, particularly nesting seabirds. For example, Schoodic Island has been designated a

state "Significant Wildlife Habitat" because it is a critical nesting site for seabirds. It is particularly important as a nesting area for common eiders, which occupy the island from May through mid-July. A 1996 study (Mittelhauser et al. 1996) recorded regular disturbances by visitors of nesting common eiders and gulls. The presence of humans caused adult birds to flush from the nest, leaving the eggs and chicks vulnerable to predation or cold weather and hatch failure (Kuss et al. 1990). Researchers visited the island at least twice during the preparation of the 1996 study, and found 15 people traversing nesting habitat and flushing birds in one case, and their own activities having the same effect in another, despite restricting their actions to the shoreline to minimize disturbance. Both times, gulls ate the unprotected eggs and were able to kill many of the exposed chicks. This phenomenon is supported by earlier studies (Maine Department of Inland Fisheries and Game 1974). Birdwatching and human disturbance were identified as serious threats to seabirds in the study area during nesting and may have already had moderate or even major impacts to nesting success of seabirds on Schoodic Island. Although Schoodic Island is closed to pets during the nesting season, closing the island to visitors, particularly between March 15 and August 31, or posting informational signs during the nesting season could result in moderate or major localized benefits for common eiders and other nesting seabirds on Schoodic Island.

In addition, regardless of the alternative, NPS will revegetate existing social trails on Little Moose Island, and create a 0.75-mile trail to allow the public access without further degradation. Some of these social trails lie along the tidal bar separating the island from Schoodic Peninsula. Creating a clearly marked trail and blocking off and revegetating existing social trails could reduce impacts to coastal vegetation on this intertidal area, with resulting moderate localized benefits.

### **Impacts of Alternative A: No Action**

**Analysis** - The rocky intertidal areas that are particularly species rich or pristine are accessed by the Sundew Trail originating on the base (NPS staff, personal communication, October 2002). When the navy base was active, the trail

was essentially unavailable to park visitors. The undisturbed nature of the intertidal zone along the west side of Big Moose Island indicates human impacts have been minimal. This is very likely to continue if the No Action Alternative is selected, as even if the site is used by NPS for educating the few program participants anticipated to use the base, they will be led by park staff who will ensure impacts are minimized. As with any NPS property, collecting will be prohibited unless a specific research permit is issued.

Parking areas in the vicinity of the two estuarine systems in the study area, at Frazer Point and in the vicinity of West Pond, experience greater visitation than the rocky intertidal areas described above. The average number of cars parked at the Frazer Point lot varies from 0 to 22 between the hours of 8:00 a.m. and 12:00 p.m. West Pond pull-off has an average of 0–4 cars. At low tide, visitors are able to cross over to Pond Island, with possible impacts from trampling to vegetation or fauna in the intertidal area. However, casual observations indicate the tidal bar connecting Big Moose Island and Pond Island, the only spot where foot access is possible, does not appear to be experiencing noticeable effects. The majority of visitors to Pond Island canoe across West Pond and land on the beach on the southeastern side of the island. A relatively recent study of several islands in the park (Mittelhauser et al. 1996) concluded "visitation was infrequent and number of visitors low" with "minimal amounts of trash" as evidence of human impact recorded. Recent anecdotal observations support these conclusions, suggesting few people actually make it out to the island, either by foot or canoe (Mittelhauser et al. 2002).

Mosquito Harbor, located near Frazer Point, is mostly submerged during the tidal cycle, although some of the shoreline is uncovered during low tide. The shore is deep mud, and some use for clamming or collecting marine worms is possible. For the most part, visitors keep to firmer sandy soils and rocky areas, or fish off the dock near the outfall of the harbor.

Under the No Action Alternative, the very small number of staff and summer program participants at the base will add about 3% more

people to the area than if no staff or programs were located on site. Visitation would continue to increase at about 1% per year, exerting a very slow increase in impact on existing use at intertidal areas. To the extent that navy personnel visited these areas when the base was fully occupied, the impact of many fewer people on base could be beneficial for coastal flora and fauna. However, since the rocky intertidal area accessible only by base personnel is in pristine condition, it appears navy personnel had little or no adverse impact on intertidal biota. In addition, visitors only rarely seem to use the gravel or mud flats at Frazer Creek or Pond Island. Use of this coastline or any of the significant intertidal areas in the study area by program participants would likewise be very low impact, as participants would either be guided or fully informed of restrictions. Therefore only negligible differences in impact to intertidal areas compared to existing conditions would be expected under this alternative. An exception to this may be some slight improvement in conditions in the tidal bar linking the peninsula to Little Moose Island. A large percentage (40–45%) of navy base personnel indicated they used the park for hiking or viewing nature. Although the survey did not specifically address their use of Little Moose Island, its rare plants and physical location near the base may have made it an ideal candidate for these activities. A reduction in the number of people on the base may therefore result in reduced use of and impact to coastal vegetation in the area between the peninsula and Little Moose Island. The degree of such a benefit is unknown, but may be a minor or even moderate one compared to 2001 conditions if use by base personnel was intense.

As described above under "Impacts Common to All Alternatives," visitor use and resulting disturbance of nesting seabirds on Schoodic Island is already having noticeable and possibly serious impacts. If some of these visitors were base personnel, closing the base and allowing only a maximum of 20 program participants and staff onto the site could offer relative benefits to the birds nesting on Schoodic Island. The degree of such a benefit is unknown, and depends on the visitation to the island by base personnel. Even if a few base personnel used the island, the relative benefits of reducing this

use could be moderate or major for nesting seabirds.

**Cumulative Impact** - Impacts to intertidal areas in the region are similar to those described above. In addition to impacts from human trampling and collecting, they may experience impact from oil spills, sewage outfalls, and increased pollution. In some areas, the impact is severe enough that local communities are involved in educational programs for their citizens, such as the "tidal etiquette" program recently created in Kennebunk, Maine (Feurt 2001). In light of impacts to intertidal areas not under public protection, ensuring the protection of those in the park may be particularly important.

The population of common eiders in Maine has appeared to decline in recent years as the hunter harvest has increased. In Maine, harvest of waterfowl, including common eiders, has increased from 3–4% in the 1960s to over 20% in the mid-1980s and a recent high of 29% of the population in 1996 (Maine Department of Inland Fisheries and Wildlife 2001). Harvests in Nova Scotia and New England have doubled in recent years, and changes in the 1998 hunting season to reduce the harvests were implemented as a result. In 1999, Maine reduced its bag limit of common eiders to a maximum of five, required the use of steel shot to prevent lead poisoning of waterfowl, and has used money from the sale of waterfowl hunting stamps and art prints to acquire and improve habitat. Statewide over the last ten years (1990–2000), the number of common eiders has averaged 41,800, with significantly fewer (36,722) in the most recent five of those years.

**Conclusions** - Possible negligible to moderate benefits to coastal vegetation lying between Little Moose Island and the peninsula associated with controlled visitor use and restoring existing social trails might result under any of the alternatives. Inventorying, monitoring, and applying visitor controls, when needed, to intertidal or other coastal resources, actions common to all alternatives, may prevent the condition of these resources from deteriorating. Currently, some intertidal areas, as well as brackish mud and gravel flats, and sub-tidal areas in the study area, are in relatively pristine

condition and appear to receive only very limited visitor use. Increased use associated with increased visitation over time and a small number of program participants at SERC are not expected to result in more than negligible adverse or beneficial changes to these resources, with the exception of a possible minor or even moderate benefit to coastal resources in the tidal bar and brackish wetland between Little Moose Island and the peninsula. Significant statewide reductions in the common eider population have occurred recently; reductions in use on Schoodic Island associated with base closure, monitoring, and possible restriction could offer negligible to major benefits locally, and negligible to minor benefits to the state population of common eiders or other seabirds. No impairment to park coastal resources would occur.

#### **Impacts of Alternative B: National Park Service Management**

**Analysis** - Under Alternative B, about 18% more people will be using the entire study area than under the No Action Alternative. Intertidal zones may well draw program participants, and groups of students or researchers may be frequently visiting these sites. Those sites closest to the base, such as Little Moose Island and the rocky intertidal area accessed by the Sundew Trail, may be most at risk. Impacts would primarily be limited to those associated with trampling, as collecting would not be allowed under normal circumstances. However, these can be serious, as described above under "Impacts Common to All Alternatives." The benefits to coastal resources in the vicinity of the tidal bar between Little Moose Island and the peninsula attributable to reduced use under Alternative A would either not be as apparent in this alternative, or disappear altogether depending on the level of interest by program participants. Closing the area to unaccompanied visitors or students and limiting the number of accompanied students, visitors, or researchers allowed to visit the site would reduce impacts.

Program participants may also be more likely than general visitors to explore and strike out on their own to find interesting natural areas farther from the base to study. The intertidal



areas surrounding Big Moose Island may be tempting for some. Since most of the coastal resources in the study area receive relatively little use, directed program use could have relatively large impacts, ranging from minor to even locally major compared to the No Action Alternative. For example, whereas most visitors do not cross a relatively deep area to access Pond Island or walk out onto mud flats in Mosquito Harbor during low tide, program participants may be more willing to venture out into these zones. Although the mudflats, gravel beaches, and rocky areas without tide pools are likely to be able to withstand increased use without noticeable impact, increased trampling of vegetation on tidal bars to Little Moose Island and Pond Island could have larger-scale effects. Monitoring and applying restrictions if needed will keep impacts to negligible or minor.

Little Moose Island receives quite a bit of use, and, although the degree to which navy personnel used these resources is unknown, they likely did not contribute to impacts. The types of impacts this use is having are detailed above, and include trampling of vegetation. The negligible to moderate benefits to Little Moose Island with base closure would likely be offset with increased program use of the entire area under Alternative B. If students are allowed to visit these areas without restrictions, education, or guided use, the impacts could be readily apparent (moderate) or even severe (major) in some cases. Restrictions in particular could reduce these impacts so they are slight (minor) or nearly undetectable (negligible).

If the Schoodic Education and Research Center creates enough demand, it is possible that the privately owned and operated ferry service between Bar Harbor and the peninsula would be expanded along with connections to the Island Explorer bus system. No sites inside the park are available to accommodate a ferry service. However, creating the SERC may increase demand for transportation between the main part of the park on Mount Desert Island and the peninsula enough that ferry service expansion would occur. Although not solely a federal action, the impacts are generally addressed in this *Environmental Impact Statement*.

An expanded ferry service would use smaller boats (less than 65 feet), as demand would not support large ferries. A recent study looked at both monohull and catamarans as options. This study found that a summer seasonal ferry service offering 10–15 trips per day (combined recreational and commuter traffic) would be sustainable at levels of base use between Transportation Alternatives 2 and 3 (U.S. Department of Transportation 2002). All would cross Frenchman Bay. This increase in boat traffic in the bay may have some negligible impacts to marine mammals, including from engine noise and resulting interference in whale and dolphin communications, collisions, leaks of fuel from boat engines, and the disturbance some wildlife experience from the presence of humans or machines. Pelagic birds or birds occupying shorelines along the ferry route might also be adversely affected by the presence of humans and noise, and by disruption of open ocean feeding patterns. Wildlife, including nesting or sensitive seabirds along the coast of islands between Bar Harbor and Winter Harbor, may abandon their nests as boats pass, leaving chicks vulnerable to cold and predation. Studies have found repeated interruptions of feeding or nesting can result in reduced reproductive success (Burger 1995). Because Schoodic Island lies to the east of the peninsula, nesting birds on it would not be affected by ferries between Bar Harbor and Winter Harbor.

**Cumulative Impacts** - In addition to the impacts identified above for No Action, cumulative impacts for Alternative B would include increased boat traffic in Frenchman Bay, and increases in visitation to islands or other coastlines where wildlife feed, nest, or rest. The shorelines the ferry route is most likely to affect would be those along Bald Porcupine Island, Stave Island, Jordan Island, Ironbound Island, and Grindstone Neck. Expanded use of the Island Explorer transit system would reduce vehicular traffic.

**Conclusions** - The same benefits to coastal resources on Little Moose Island from controlling visitor use, inventorying and monitoring, and revegetating social trails as described in the "Conclusions" section for Alternative A would occur. Increased use of the intertidal areas by

students or researchers could result in moderate or even major localized damage to areas considered pristine compared to the No Action Alternative. Education, restrictions, monitoring, and closures may be required to keep impacts from becoming severe.

Benefits to coastal resources in the tidal bar and brackish wetland between Little Moose Island and the peninsula, or on Schoodic Island derived from reductions in use in Alternative A would be offset by increased program use. If students are allowed to visit these areas without restrictions, education, or guided use, the impacts could be readily apparent (moderate) or even severe (major) in some cases. Restrictions in particular could reduce these impacts so they are slight (minor) or nearly undetectable (negligible). However, impacts to common eiders would be additive and adverse, rather than beneficial and mitigating. An expanded ferry and transit service, if warranted, could have negligible impacts to marine mammals, or pelagic or coastal wildlife from engine noise, collisions, and the presence of humans. No impairment to park coastal resources would occur.

#### **Impacts of Alternative C: Collaborative Management (Preferred)**

**Analysis** - Under Alternative C, nearly 50% more people will be using the study area than under the No Action Alternative, and use of the base will increase 17–18-fold from 20 to 350 each day. As noted above in Alternative B, because intertidal areas may be the focus of classes or research conducted at the Schoodic Education and Research Center, use would need to be monitored or restricted to ensure impacts to pristine resources are not adversely affected. The chance of such an impact would increase substantially under this alternative compared to No Action. Coastal resources most at risk may be those closest to the base, such as the rocky intertidal area accessed by the Sundew Trail, and Little Moose Island.

The NPS could reduce the likelihood of extensive impacts by closing the area to unaccompanied visitors or students, and by limiting the number of accompanied students, visitors, or researchers allowed to visit the site.

Intertidal zones and other attractions farther from the base, including West Pond and the Frazer Creek/Mosquito Harbor mudflats, may also be appealing areas for students to visit. For those areas currently receiving little use, directed program use of this magnitude could have relatively large impacts, ranging from moderate to locally major compared to the No Action Alternative. Although the mudflats, gravel beaches, and rocky areas without tide pools are likely to be able to withstand increased use without noticeable impact, increased trampling of vegetation on tidal bars between Little Moose and Pond islands could have larger-scale effects. Monitoring and applying restrictions if needed will keep impacts to negligible or minor.

As noted above, Schoodic Island and Little Moose Island both receive quite a bit of use, and although it is unknown to what degree navy personnel used these resources, it is likely they did contribute to use and associated impacts at both locations. If students are allowed to visit these areas without restrictions, education or guided use, the impacts could be moderate or even major in some cases. Restrictions in particular could reduce these impacts so they are minor or negligible.

The chances of economic success for a ferry are considered highest in Alternative C. No separate study of ferry service for the number of visitors expected under this alternative was conducted; however, it is likely that demand would require an increase in the number of ferries compared to Alternative B. In other words, it is more likely that summer ferries would make about 15 trips in this alternative, rather than the 10 or so in Alternative B. This increase in boat traffic in the bay may have some negligible or minor impacts to marine mammals, including from engine noise and resulting interference in whale and dolphin communications, collisions, leaks of fuel from boat engines, and the disturbance some wildlife experience from the presence of humans or machines. Pelagic birds or birds occupying shorelines along the ferry route might also be adversely affected by the presence of humans and noise, and by disruption of open ocean feeding patterns. Wildlife, including nesting or sensitive seabirds along the coast of islands

between Bar Harbor and Winter Harbor, may abandon their nests as boats pass, leaving chicks vulnerable to cold and predation. Because Schoodic Island lies to the east of the peninsula, nesting birds on it would not be affected by ferries between Bar Harbor and Winter Harbor.

**Cumulative Impacts** - Cumulative impacts would be the same as those reported for Alternative B.

**Conclusions** - The same benefits to coastal resources on Little Moose Island from controlling visitor use, inventorying and monitoring, and restoring social trails as described in the "Conclusions" section for Alternative A would occur. Increased use of the intertidal areas by students or researchers could result in moderate or even major localized damage to areas considered pristine compared to the No Action Alternative. Education, restrictions, monitoring, and closures may be required to keep impacts from becoming severe.

Benefits to coastal resources in the tidal bar and brackish wetland between Little Moose Island and the peninsula or on Schoodic Island derived from reductions in use in Alternative A would be offset by increased program use. If students are allowed to visit these areas without restrictions, education, or guided use, the impacts could be moderate or even major in some cases. Major impacts are more likely than in Alternative B. Restrictions in particular could reduce these impacts so they are minor or nearly negligible. However, impacts to common eiders would be additive and adverse, rather than beneficial and mitigating. An expanded ferry and public transit system, if warranted, could have negligible or minor impacts to marine mammals, or pelagic or coastal wildlife from engine noise, collisions, and the presence of humans. Use of the Island Explorer transit system would reduce vehicular traffic. No impairment to park coastal resources would occur.

## **WILDLIFE**

### **Impacts Common to All Alternatives**

All alternatives include the inventorying and monitoring of natural and cultural resources, and the use of this information along with studies to determine acceptable visitation over time. They also all include the application of zoning and the control of visitor use in important wildlife habitat to protect resources from the impacts of visitors. These measures may include signs, information packets, the requirement for permits to enter, or the partial or complete closure of areas to visitation. Candidates for the special application of protective measures and the protected natural area subzone include islands, wetlands, estuaries, intertidal zones, and other critical habitat, including Maine's "Rare or Exemplary Natural Communities," "Essential/Significant Wildlife Habitat," and rare plant locations. These measures could dramatically improve conditions at some of these communities, particularly on affected islands.

For example, Schoodic and Rolling islands may be occupied by bald eagles, which nest between April and June (Maine Department of Inland Fisheries and Game 1974). Bald eagles can be quite sensitive to the presence of humans, and can abandon their nests for hours in response to humans in boats or on foot near their nests, leaving eggs vulnerable to cold (Grubb et al. 1992). Flushing the nest can also adversely affect adult eagles through energy loss, and slow-moving boats, such as kayaks or canoes, can disrupt eagle feeding. If noise or activity is frequent, some eagles may abandon a nest for a season or not return to it the following year (Knight and Cole 1995). Although Schoodic Island is closed to pets during the nesting season, closing the island to visitors, particularly during early and late spring, or posting informational signs during the nesting season could result in minor to major localized benefits for nesting bald eagles.

All alternatives include the proposed acquisition of a conservation easement on all or part of the 1,600-acre privately owned tract between the Schoodic District's northern boundary and State Route 186 in Winter Harbor. A conservation easement could restrict or limit develop-

ment. The location and relatively undisturbed nature of this land make it an important migration corridor between forests to the north and the Schoodic Peninsula for mammals found nowhere else in the park.

At least 41 species of mammals are present on the Schoodic Peninsula. This includes several larger species such as moose, bobcat, and fisher, which are rare or absent elsewhere in the park. Acquiring a conservation easement would help continue to preserve this acreage as habitat for wildlife and preserve high mammalian species diversity and the presence of larger species on the peninsula, a minor to major benefit depending on the planned use of the property without NPS protection.

All alternatives also involve the removal of some unused structures in the study area, such as the perimeter fencing. Restoration of these few acres would provide a negligible benefit to wildlife in the study area. It is also possible that wildlife now kept from accessing the base by the fencing will either find habitat on the site, or be disturbed by construction activities or the presence of human activity.

#### **Impacts of Alternative A: No Action**

**Analysis** - Visitation would continue to increase slowly over the 10-15-year time frame of the plan by about 1% per year. Over 15 years, this could mean an increase in use of trails and park facilities of about 15%, with resulting adverse impacts to wildlife, particularly animals on or near existing trails in the park between Schoodic Head and the coast. These impacts would result from the presence of humans, noise, and habitat destruction associated with foot traffic. Although this may have a negligible or minor impact on wildlife in the vicinity of the trails, compared to activities when the base was in operation, the number of people in the study area, and particularly on the base, would be significantly lower, even several years from the time this alternative is implemented. This reduction in use could offer benefits to wildlife both on the base, and on park property nearest the base. For example, use of the Sundew Trail, Schoodic Head trails, Little Moose Island, and perhaps Schoodic or Rolling islands might

decrease, with resulting positive impacts on wildlife relative to 2001 conditions. Islands in the study area may also act as refuges for other species of birds whose populations in the area of the park have fallen because of human disturbance, such as purple sandpipers. These species could also benefit from base closure, although the extent of such benefits is unknown.

Because few people live at the former base, most of the buildings would be in layup and perimeter fencing would be removed, it is likely that wildlife would experience a benefit relative to 2001 conditions through the addition of habitat on base as well. Vegetation, some of it native, would likely begin to take over unmaintained parking areas, pathways, or other open areas, and without the presence of park staff, wildlife would occupy these areas. Upland bird and smaller mammal species are the most likely inhabitants. The extent of these impacts is unknown, but likely to be negligible.

**Cumulative Impacts** - Some species of wildlife, particularly birds or other migratory species, have experienced adverse effects from human activities, including the removal of habitat, noise, pollution, and in some cases harvesting. Neotropical bird species, for example, travel thousands of miles along routes where human development may have removed very large blocks of resting or feeding habitat. Many species have been suffering long-term declines as a result (Famous 1999). The Schoodic Peninsula, however, is relatively undisturbed. In the study area, the primary human activities and their related impacts have come from visitors to the park and base operations. With the removal of military operations and personnel from the base, a negligible to minor cumulative positive impact to wildlife should occur.

Bald eagles have been monitored in the park since 1962. Productivity (eaglets fledged/nesting pair) declined continuously from 1960 to 1975 and more than 50% of nesting territories in the area of the park and Frenchman Bay were abandoned during this time. In the entire 15 year period, only seven eaglets were successfully fledged (Owne, Jr. and Hodgman 1989). A supplemental feeding program was initiated in 1985 to reestablish resident eagles in this area, and productivities have dramatically improved

to exceed state-wide averages since then. Productivity for the site in the years 1987–1992 equaled 0.812, whereas for the state, productivity was 0.762 eaglets/nesting pair. Increased waterfront development in the Frenchman Bay region, tour boats, and human disturbance of nests are considered the most serious threats to continued eagle nesting success in the study area (Owen, Jr. and Hodgman 1989).

**Conclusions** - Identifying acceptable visitation over time and providing information through signs, brochures, permits, and controlled access could bring major localized benefits for some species, including the federally threatened bald eagle. Acquisition of a conservation easement on property to the north of Schoodic Unit could provide a minor to major benefit to peninsula wildlife by protecting a large block of forest habitat used for migration to and from the study area, especially by large mammals. Negligible to minor impacts to wildlife from increased visitation may occur. A negligible to minor cumulative, positive impact from the reduction in human activity on the base, the removal of fencing, and the layup of buildings is likely. Additional ongoing cumulative benefits from the relatively undisturbed and unpolluted nature of the study area to bald eagles and to neotropical and shorter-distance migratory birds would continue. No impairment of park wildlife would occur.

#### **Impacts of Alternative B: National Park Service Management**

**Analysis** - Adding 150 program participants and staff per day to an estimated 700 visitors (averaged over the 12 months of the year and weighted over the 15–20 year life of the plan) to the peninsula would increase use of the entire study area by about 18% compared to No Action. Assuming they use the same park facilities at the same rate as existing visitors, the simple increase in numbers could have an adverse impact on wildlife in the study area through disturbance and displacement, particularly near trails or on the former base. The former base and habitat adjacent to trails in the study area have been frequented by humans for several decades and are lower-quality wildlife habitat as a result. Therefore, the impact to wildlife from use of either area would be negligible to minor.

However, program participants may be attracted to higher-quality habitats in the study area in an effort to find and observe wildlife. Some species of wildlife and some individuals of each species are more susceptible to human disturbance, and humans on foot can be particularly disruptive. Wildlife running or flying from humans can experience adverse impacts from at least two sources: they stop eating when they are disturbed, and they expend energy to escape. The loss of nutrients or increased energy expended can ultimately mean that reproduction, migration, or even survival are compromised (Mattfield 1974, Bowles 1995). Species that occupy nearly every habitat in the study area could be affected, particularly if program participants or visitors travel off trails to access wetlands, streams, shorelines, or other wildlife habitat. Nesting birds or sensitive or denning mammals may be particularly susceptible. If the use of the area is regulated or guided by park staff, the impacts would be reduced and likely confined to trails or less sensitive areas. Assuming guided use, the impact of program use to sensitive or breeding wildlife is likely to be no more than minor. It is possible that program participants may attempt to access islands in the study area, which are theorized to act as refuges for some species, particularly birds, whose populations in the area of the park have fallen because of human disturbance. Directed or unregulated program use of these islands could result in minor or moderate impacts to these species.

Alternative B would dramatically increase the number of humans compared to No Action, and would add overnight use of up to 150 participants. The noise and presence of human activity during the day would have adverse impacts on wildlife occupying the base. Night lighting, noise, and the presence of humans 24 hours a day on the base would have additional impacts, particularly to nocturnal wildlife. Many mammals are either wholly or chiefly nocturnal, including raccoons, skunks, bats, mice, bobcat, and coyotes. It is possible that those on Big Moose Island may have tolerated disturbance nearby or on the base because they are able to roam freely at night. Conditions for these species and all wildlife on base would improve for Alternative A relative to 2001 conditions. However, in Alternative B, those nocturnal species otherwise tolerant of humans during the

day may experience a minor or moderate adverse impact from nighttime occupation.

Alternative B would result in the removal of 10 buildings on the base and the restoration of about 40 acres of disturbed landscape. This would be a minor beneficial impact to some species of wildlife in the study area, particularly those amenable to habitat adjacent to developed areas such as raccoons, coyotes, feral cats, and skunks. Bird species that require scrubby habitat would also benefit from the removal of buildings. As the brush changes over time to a forest ecosystem, wildlife species common to this habitat would benefit.

The Rockefeller Building would likely be landscaped with vegetation similar to that when it was first built. The removal of existing vegetation could have an undetectable or negligible localized effect on wildlife utilizing existing habitat in these locations.

If the Schoodic Education and Research Center creates enough demand, it is possible that the privately owned and operated ferry service between Bar Harbor and the peninsula would be expanded. A recent study found that a seasonal (summer) ferry service offering 10–15 trips per day (combined recreational and commuter traffic) would be sustainable at levels of program use falling somewhere between those predicted in alternatives 2 and 3 (U.S. Department of Transportation 2002). All would cross Frenchman Bay. This increase in boat traffic in the bay may have some impacts to feeding bald eagles, which can be both actively and passively disturbed by slower-moving boat traffic. Active disturbance includes flushing or flying away from the boats because of noise or the presence of humans. Studies have found repeated interruptions of feeding or nesting can result in reduced reproductive success (Burger 1995). An example of passive disturbance is the avoidance of an area where boats are moving or anchored. In one study (McGarigal et al. 1991), breeding bald eagles typically avoided foraging within 0.25 mile of a stationary boat as long as it was in place, in this case throughout the breeding season. This form of disturbance could be quite prevalent in the summer in Frenchman Bay from increases in all types of boat traffic including

ferries, and potentially more disturbing than active displacement because it can prevent an eagle from obtaining adequate food resources (Anthony et al. 1995). The degree of impact would be minor to moderate—that is, no critical habitat would be affected over the long term—and no impacts at a park or regional level to the eagle population could be attributable to ferry traffic.

**Cumulative Impacts** - Cumulative impacts would be the same as for No Action.

**Conclusions** - As in Alternative A, identifying acceptable visitation over time and providing information through signs, brochures, permits, and controlled access could bring major localized benefits for some species, including the federally threatened bald eagle. Acquisition of a conservation easement on property to the north of the Schoodic Unit could provide a minor to major benefit to peninsula wildlife by protecting a large block of forest habitat used for migration to and from the study area, especially by large mammals. Negligible to minor impacts from increased visitation to some wildlife may occur. Guided use or restrictions could keep impacts to wildlife from program participants accessing higher-quality habitat to no more than minor. Directed or unregulated program use of islands in the study area could result in minor or moderate impacts on species who occupy habitat on them specifically to avoid humans.

Increased use of the former base and overnight use could have additional minor to moderate impacts on some nocturnal mammals, and negligible impacts on other wildlife compared to No Action. A minor beneficial impact from the restoration of about 40 acres of land on the base is likely. The establishment of a ferry system to the peninsula could have minor to moderate impacts on feeding eagles. A negligible to minor cumulative, positive impact from the reduction in human activity on the base, the removal of fencing, and the layup of buildings is likely. Additional ongoing cumulative benefits from the relatively undisturbed and unpolluted nature of the study area to bald eagles and to neotropical and shorter distance migratory birds would continue. No impairment of park wildlife would occur.



### **Impacts of Alternative C: Collaborative Management (Preferred)**

**Analysis** - Adding 350 program participants and staff per day to an estimated 700 visitors to the peninsula would increase use of non-base park facilities by about 45% compared to No Action. Assuming they use the same facilities at the same rate as existing visitors, the simple increase in numbers could have an adverse impact on wildlife in the study area through disturbance and displacement, particularly near trails or on the former base. As noted above, both the old base and habitat adjacent to trails in the study area have been frequented by humans for several decades and are lower-quality wildlife habitat as a result. Therefore, the impact to wildlife from use of either area would be minor.

However, as noted above in Alternative B, program participants may be attracted to higher-quality habitats in the study area in an effort to find and observe wildlife. Species that occupy nearly every habitat in the study area could be affected, particularly if program participants or visitors travel off trails to access wetlands, streams, shorelines, or other wildlife habitat. Nesting birds or sensitive or denning mammals may be particularly susceptible. If the use of the area is regulated or guided by park staff, the impacts would be reduced and likely confined to trails or less sensitive areas. Assuming guided use, the impact of program use to sensitive or breeding wildlife is likely to be no more than minor. However, it is less likely that the activities of 350 program participants with a variety of partner occupants of the base can be completely controlled, and moderate impacts in some particularly attractive locations are possible from human disturbance. It is possible that program participants may attempt to access islands in the study area, which are theorized to act as refuges for some species, particularly of birds, whose populations in the area of the park have fallen because of human disturbance. Directed or unregulated program use of these islands could result in minor or moderate impacts to these species.

Alternative C would dramatically increase the use of the base compared to No Action, both during the day and at night. Up to 350 program

users would be on base during the day, and up to 190 would be allowed to spend the night. Night lighting, noise, and the presence of humans 24 hours a day on the base may disturb nocturnal wildlife in particular. It is possible that some participants, or even some of the courses or programs offered, may seek to experience nocturnal wildlife in their habitat at night. Many mammals are either wholly or chiefly nocturnal, including raccoons, skunks, mice, bobcat, and coyotes. Those on Big Moose Island may tolerate habitat near or on the base because they are able to roam freely at night. The addition of up to 190 overnight guests and the possibility of deliberate attempts to view nocturnal wildlife would result in at least temporary disturbance, and possible temporary or permanent displacement. Nocturnal mammals in the vicinity could experience moderate impacts from these activities.

Alternative C would result in the removal of 10 buildings on the base and the restoration of about 15 acres of disturbed land. This would be a minor beneficial impact to some species of wildlife in the study area, particularly those amenable to occupying habitat adjacent to developed areas such as raccoons, coyotes, and skunks.

As in Alternative B, the Rockefeller Building would likely be landscaped with vegetation similar to that when it was first built. The removal of existing vegetation could have an undetectable or negligible localized effect on wildlife utilizing existing habitat in these locations.

Expanded ferry service between Bar Harbor and the peninsula would probably be most likely if Alternative C were implemented. The same types of impacts to feeding bald eagles, including active and passive disturbance, as described in Alternative B would be even more problematic. The extent of such impacts is unknown, but the actual impact of just ferry traffic is likely to be minor to moderate compared to existing use of Frenchman Bay by boaters.

**Cumulative Impacts** - Cumulative impacts would be the same as for No Action.

**Conclusions** - As in Alternative A, identifying acceptable visitation over time and providing

information through signs, brochures, permits, and controlled access could bring major localized benefits for some species, including the federally threatened bald eagle and other nesting birds such as the common eider. Acquisition of a conservation easement on property to the north of the park could provide a minor to major benefit to peninsula wildlife by protecting a large block of forest habitat used for migration to and from the study area, especially by large mammals. Negligible to minor impacts from increased visitor and program use to some wildlife may occur. If program participants are guided or controlled by park staff, an additional minor impact to wildlife from increased access to higher-quality habitat is possible. Directed or unregulated program use of islands in the study area could result in minor or moderate impacts to species who occupy habitat on them specifically to avoid humans. Because it may be more difficult to control 350 program participants and multiple partners, moderate impacts from visitation to habitat of sensitive species, and from deliberate attempts to view nocturnal wildlife are possible. A negligible to minor beneficial impact from the restoration of about 15 acres of land on the base is likely. Expansion of the ferry system to the peninsula could have minor to moderate impacts on feeding eagles. A negligible to minor cumulative positive impact from the reduction in human activity on the base, the removal of fencing, and the layout of buildings is likely. Additional ongoing cumulative benefits from the relatively undisturbed and unpolluted nature of the study area to bald eagles and to neotropical and shorter-distance migratory birds would continue. No impairment of park wildlife would occur.

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## IMPACTS TO CULTURAL RESOURCES

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### Impacts Common to All Alternatives

The Schoodic District has not been systematically inventoried for archeological resources, which is proposed under all alternatives. This action would fulfill NPS's proposed resource management objective of ensuring that all management decisions are based on full consideration of the best available cultural resource information (NPS 2002). Due to lack of data and the

number of undocumented sites, archeological resource conditions are not currently quantifiable, which makes an accurate assessment of the impact of ongoing and proposed actions difficult. Completion of the proposed inventory and monitoring program would result in a minor to major benefit to archeological resources at the Schoodic District, depending on the scope and depth of such surveys. The NPS currently surveys an area before activities that could impact buried or other cultural resources take place. Continuing this activity will continue to prevent damage to individual cultural resources. However, a survey of the entire study area would provide additional benefits.

Under all alternatives, baseline data and surveys are proposed for use in identifying acceptable visitation that can be monitored over time. The simultaneous monitoring of visitation and conditions of cultural resources through time would allow for necessary adjustments to be made to adequately preserve and protect resources. Since cultural resources (especially buried or surface-exposed archeological resources) are vulnerable to impacts of human use (e.g., foot traffic, overuse, vandalism, looting), the determination of appropriate visitor levels could provide important protection, and offer minor to major benefits for archeological and other cultural resources.

All alternatives include the removal of the perimeter fencing at the former navy base. These removal operations would involve ground disturbance that has the potential to impact buried archeological resources, primarily through the loss of cultural context of artifacts, features, etc. Fence removal is considered to pose a negligible, site-specific adverse impact in its potential to affect buried cultural deposits, both because a recent reconnaissance study (Berger & Assoc., Inc. 1999) suggests the probability of a significant archeological site is low in this area, and because the ground has already been disturbed by the structure and fence. This potential could be mitigated to negligible by the involvement of a professional cultural resource specialist in advance of any ground-disturbing activities.

All alternatives share a common goal of discouraging use of social trails. Those on Little Moose

Island are specifically proposed for restoration (NPS 2002). The ongoing use of social trails potentially jeopardizes the integrity of buried cultural resources, particularly with the predicted slow but steady increase in visitation under all alternatives. Human-caused erosion of areas through social trail use has the potential to expose and disturb subsurface archeological deposits. Incidental encounters with undocumented cultural resources by park users may also occur with the potential for degradation (e.g., erosion and looting) and loss of important archeological data. The NPS's proposal to revegetate social trails on Little Moose Island to their native state could result in a site-specific, minor to major benefit to archeological resources, depending on their location and condition. Actual restoration activities, as well as the proposed creation of a 0.75-mile of trail on Little Moose Island, has the potential to disturb buried or surface-exposed cultural resources, resulting in negligible to minor impacts to those resources. These impacts could be mitigated to negligible by the involvement of a cultural resource specialist during trail revegetation and construction activities.

The NPS has prepared a nomination to the National Register of Historic Places to establish a historic district encompassing the entire Schoodic District minus the 100-acre former navy base and coastal islands. The nomination's focus is the cultural landscape of the Schoodic District and includes, among other things, the 6-mile Schoodic Loop Road, four hiking trails, and several developed areas dating to the 1930s and 1940s. The NPS plans to maintain the cultural landscape of the Schoodic Peninsula Historic District according to the *Secretary of the Interior's Standards for the Treatment of Historic Properties* (1995). These standards provide guidance to landscape owners, managers, landscape architects, preservation planners, etc., who plan and implement project work. The proposal to prepare documentation for the proposed historic district is considered a minor to moderate regional benefit owing to its resultant preservation of the historic integrity of the Schoodic Peninsula cultural landscape and its contribution to the understanding of the historic development of Acadia National Park over the past century.

The NPS has completed a feasibility study of potential options for public transportation (e.g., buses and ferries) with the goal of reducing private automobile use. The study will help identify solutions that can reduce adverse impacts to the Schoodic Loop Road, which is an important element of the cultural landscape. Certain transportation options that may be identified in the study could have the potential to impact the cultural landscape in the future (e.g., construction of new elements such as bus pull-offs/turn-arounds, access to Schoodic Loop Road from ferry service). However, if the guidance provided by the *Secretary of the Interior's Standards for the Treatment of Historic Properties* (1995) is integrated into the study, it would likely preclude consideration of options that could later negatively impact the cultural landscape.

Under all alternatives, certain lands encompassed within the potentially eligible Schoodic Peninsula Historic District, including the transportation circulation and trail systems, are proposed for rezoning from their existing "Natural Environment Subzone" of the "Natural Zone" to "Preservation Subzone" of the "Cultural Zone," an action intended to preserve significant aspects of the cultural landscape of the peninsula. The rezoning and subsequent management of these portions of the proposed historic district under the *Secretary of the Interior's Standards for the Treatment of Historic Properties* (1995) would result in minor to moderate, localized to regional benefits.

The maintenance of the Schoodic Point facilities is proposed under all alternatives. The Schoodic Point facilities, including the restrooms, are remarkably unchanged since their completion and retain significant integrity of location, setting, and design, all of which reflect their historic use. The facilities exhibit integrity of materials and workmanship and NPS will maintain the structures in a manner consistent with the *Secretary of the Interior's Standards for the Treatment of Historic Properties* (1995). As such, proposed maintenance activities at Schoodic Point are considered to be a negligible to minor, site-specific benefit to this element of the larger cultural landscape.

The Frazer Point picnic area and restrooms are also proposed for maintenance under all alternatives. This picnic area is included within the boundaries of the potentially eligible Schoodic Peninsula Historic District. However, because of its age, it is considered a non-contributing element to the proposed historic district itself, and only offers some help in understanding the general historic development of the Schoodic District and Acadia National Park. The majority of the site was constructed in 1964, as part of the Mission 66 program, although the restrooms are a recent addition. The picnic area includes numerous fire pits, picnic tables, informal footpaths, pumphouse, pier, etc. Maintenance activities at Frazer Point conducted in a manner which do not compromise the integrity of the potentially eligible historic district are considered short-term, negligible site-specific impacts to these Mission 66 cultural resources.

Under all alternatives, the Rockefeller Building and powerhouse located on the former navy base are proposed for zoning to "Preservation/Adaptive Use Subzone" of the "Cultural Zone." This subzone is defined as, "Use, with necessary modifications, of historically significant structures for leasing, public activities, or administrative activities and functions that perpetuate the characteristics that qualify these resources for listing in the National Register of Historic Places" (NPS 1992). The management of these structures under this zone is considered a minor, site-specific benefit to these historic structures.

Under all alternatives, maintenance/preservation proposals for properties eligible for listing in the National Register of Historic Places within the Schoodic District would adhere to the *Secretary of the Interior's Standards for the Treatment of Historic Properties (1995)* for those resources, ensuring that their eligibility status is retained. As benign neglect can result in cumulative adverse impacts to cultural resources, this effort is considered a long-term, site-specific benefit of minor to moderate intensity for the Rockefeller Building relative to 2001 conditions.

Under all alternatives, NPS would evaluate structures on the Schoodic Peninsula with the stated objective of making necessary modifications to ensure universal access to the public.

Many structures in the park, particularly within the former navy base, are not considered eligible for the National Register of Historic Places. However, for those that are, it is NPS's intent to maintain them in a manner that does not jeopardize their eligibility for listing in the National Register of Historic Places. To ensure this, all structure modifications designed to provide universal access to eligible historic structures would adhere to the *Secretary of the Interior's Standards for the Treatment of Historic Properties (NPS 1995)*. Under these standards, the proposed modifications for universal access to eligible historic structures are considered to have negligible to minor, site-specific adverse impacts to cultural resources. For the buildings that are not eligible for listing in the National Register of Historic Places, their proximity to eligible structures or cultural landscapes should be considered so as to avoid indirect adverse effects to them. Conducted in this manner, modification of ineligible structures to provide universal access is considered a negligible impact to cultural resources.

Under all alternatives, the U.S. Navy's collection at the former navy base would be conveyed to NPS. Acquisition of these data would further NPS's proposed objective of enhancing interpretive and educational visitor programs regarding the historic land use of the peninsula, including the former navy base operations. These records have traditionally been held by the U.S. Navy, limiting access to the public and park staff. As a result of the transfer, this information would now be available for new research and educational opportunities by park staff and the public, creating a minor, regional benefit to the park.

#### **Impacts of Alternative A: No Action**

**Analysis** - No major changes in management of the Schoodic District are planned under the No Action Alternative. The NPS would manage all park programming proposed for the former navy base property. Primary sources of potential impacts to cultural resources under this alternative are the slight increase in visitor (approximately 1,800 annually) and vehicular use and the use of historic structures located on the base. Approximately 20 program partici-

pants would visit the base daily. Many of the base buildings would be placed on layup status and would be protected and maintained. The current road system of the former navy property would remain unchanged.

The 6-mile Schoodic Loop Road is the focal point of the eligible Schoodic Peninsula Historic District. Its condition and appropriate maintenance are primary considerations regarding the cultural landscape of the Schoodic District. With the cessation of the navy operations at Big Moose Island in July of 2002, 350 daily vehicle trips have been eliminated along the Schoodic Loop Road. Under the No Action Alternative, it is estimated that about 20 program participants would drive (two per car) to the base daily, resulting in approximately 10 additional park-related trips a day between July and September. With the elimination of the 350 trips by navy personnel and the addition of ten seasonal trips by program participants, daily vehicular traffic would be significantly decreased along the Schoodic Loop Road compared to 2001 conditions. Because of its potential to delay the need for future major maintenance actions, this is considered a minor benefit to the cultural landscape. Under the No Action Alternative, the use of a few of the base buildings is proposed, including the Rockefeller Building. As noted above under “Common to All Alternatives,” reuse and maintenance of the Rockefeller Building would be guided by the *Secretary of the Interior's Standards for the Treatment of Historic Properties (1995)*. Adhering to the standards would keep impacts from reuse to no more than minor.

Original landscaping would not be restored on base property under this alternative. This continuing altered state of the base area may be viewed as a detraction from the larger Schoodic Peninsula cultural landscape as well as the character of the Rockefeller Building and its grounds, although because it is identical to existing conditions, has no impact relative to 2001 conditions.

**Cumulative Impacts** - Some ongoing uses of the Schoodic District may be threatening cultural resources. The projected, though small, increase in visitation under the No Action Alternative could indirectly result in degrada-

tion of more fragile aspects of the cultural landscape (e.g., trails, undocumented cultural resources). As visitor numbers and risks to cultural resources increase, so too does the need to educate and involve the public in historic preservation efforts. Since the No Action Alternative provides for few new opportunities to enlist the public's help in cultural resource preservation endeavors, cumulative adverse impacts to cultural resources are possible. However, as mitigating factors, the completion of a comprehensive cultural landscape inventory, the determination and monitoring of acceptable visitation, and the discouragement of social trail use proposed under all alternatives would provide critical information necessary for the park to avoid potential cumulative adverse effects to cultural resources within the Schoodic District. Depending on the cultural resource involved, these efforts could result in minor to major benefits.

**Conclusions** - Under the No Action Alternative, as is true for all alternatives, the proposed inventorying and monitoring of cultural resources in the Schoodic District and the subsequent use of the data to establish acceptable visitation would result in benefits ranging from minor to major, particularly for archeological resources. Revegetating social trails on Little Moose Island or elsewhere in the study area could have site-specific, minor to major benefit to archeological resources, but creating a trail could have negligible to minor impacts from disturbing them.

As with all alternatives, regional benefits ranging from minor to moderate would likely result from the Schoodic Peninsula Historic District. Rezoning lands in the proposed Schoodic Peninsula Historic District to preserve significant aspects of the cultural landscape of the peninsula and subsequent management under the *Secretary of the Interior's Standards for the Treatment of Historic Properties (1995)* would result in minor to moderate, localized to regional benefits. As is the case under all alternatives, maintenance of developed areas in the park and modifications to some structures to provide universal access would result in negligible to minor, site-specific impacts to cultural resources.

Changing the zoning to a more protective subzone and managing historic resources according to the *Secretary of the Interior's Standards for the Treatment of Historic Properties* (1995) could have minor to moderate benefits for the continued integrity of the cultural resources. The standards would also keep historic building modifications from resulting in more than minor impacts.

Compared to 2001 conditions, the No Action Alternative would result in significantly fewer vehicular trips to Big Moose Island. This reduction in vehicular use is considered a minor, localized benefit to the cultural landscape of the Schoodic Peninsula, particularly to the Schoodic Loop Road. The very limited increase in visitation could result in slightly greater but unquantifiable risks to cultural resources in the area. Of the three alternatives, the No Action Alternative would result in the lowest level of visitor and vehicular use of the Schoodic District. Consequently, it is likely to pose the least risk to cultural resources.

The NPS's acquisition of the U.S. Navy's collection would be a minor regional benefit to NPS. The No Action Alternative would result in no impairment of cultural resources located at the Schoodic District.

#### **Impacts of Alternative B: National Park Service Management**

**Analysis** - The activities most likely to affect cultural resources under Alternative B are associated with the increased visitation and expanded use of former navy base property. The NPS would create and manage the facilities and programs at the Schoodic Education and Research Center on the former navy base. Educational programming would be expanded over the No Action Alternative and additional navy base buildings are proposed for use. An increase of approximately 13,500 annual visitors to the Schoodic District is expected, a significant increase over the No Action Alternative (1,800), but less than half of those projected for Alternative C (31,500). Most of these visitors would be participants in increased educational programming offered at the base. As many as 150 visitors could participate in day programs at

the base; overnight accommodations for up to 90 would be available.

Under this alternative, approximately 40 acres of disturbed landscape at the former navy base could potentially be restored, primarily through the removal of unnecessary buildings. These actions involve ground disturbance that has the potential to significantly impact buried archaeological sites, primarily through the loss of cultural context of artifacts, features, etc. Since the ground surface of the area where disturbance is planned has not been inventoried in the past, the potential exists that undocumented archeological sites could be encountered. However, structure, pavement, and landscape restoration are considered to pose a relatively low risk of affecting subsurface resources. In addition, a recent reconnaissance study (Berger & Assoc., Inc. 1999) indicated a low probability of significant archeological sites in the study area. Therefore, the impact to buried cultural resources (prehistoric or historic) of removing buildings in this alternative is likely to be no more than negligible to minor and site-specific compared to No Action (where no structures are proposed for removal). This potential impact could be mitigated to negligible by the involvement of a professional cultural resource specialist in advance of any ground-disturbing activities.

The increased availability of educational/interpretive visitor materials proposed under this alternative would focus on visitor understanding of the Schoodic District and its previous land use, including the navy base property. Visitation is projected to increase under this alternative and with it, so too does the risk of impacting archeological resources. Through appropriate informational materials, NPS can further educate and involve visitors in historic preservation efforts. The completion of a comprehensive cultural landscape inventory and the determination of acceptable visitation are complementary to the increased visitor education efforts. It is expected that an increase in educational and interpretive visitor information related to historic preservation issues would result in site-specific benefits of unknown magnitude to cultural resources, possibly ranging from negligible to moderate in intensity compared to No Action. Minor regional bene-

fits to cultural resources may also be realized through the enhanced information regarding historic land use of the Schoodic District. Similar benefits are expected under Alternative C.

When compared to the No Action Alternative, Alternative B would result in an increase in vehicular use of the Schoodic Peninsula road, as a result of an expanded SERC. The 6-mile Schoodic Loop Road is the focal point of the potentially eligible historic district on the Schoodic Peninsula and its condition and appropriate maintenance are primary considerations. With the departure of the navy base operations at Moose Island, 350 daily vehicle trips have been eliminated along the Schoodic Loop Road. Under this alternative, a general decrease in vehicular traffic of about 60 cars per day on average along the Schoodic Loop Road compared to 2001 conditions is considered a minor, localized benefit to this element of the potentially eligible historic district because it could delay the need for major maintenance actions. When compared to the No Action Alternative, Alternative B would result in about 65 additional vehicles per day and a minor increase in the probability and resulting impact of major road maintenance on the Schoodic Loop Road.

Under Alternative B, approximately 40 acres of land now covered with buildings, pavement, or asphalt would be revegetated. The removal of these buildings may provide less-obstructed views from other areas of the park, as well as a better sense of the features and layout of the original base. The benefits to visitors from restoring some of the early cultural context of the base is likely to be only negligible or minor.

Under Alternative B, the Rockefeller Building would be the focal point of the Schoodic Education and Research Center. The exterior would be preserved and the interior rehabilitated to accommodate the additional programming. Exterior and interior alterations would be conducted in accordance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties* (1995), and, therefore, considered a minor to moderate, site-specific benefit. Alternative C proposes modifications to the Rockefeller Building which are similar in their overall effects and benefits.

The NPS proposes to landscape the Rockefeller Building consistent with the 1934 grading and planting plans. As planned, the landscape redesign around the Rockefeller Building is considered a minor, site-specific benefit to the structure as a result of the reestablishment of its original setting. Alternative C proposes similar beneficial vegetation restoration. No such restoration is proposed under the No Action Alternative.

In addition to the plans for the use of the Rockefeller Building, use or removal of other base buildings is proposed under this alternative. Even though the Rockefeller Building and powerhouse are the only structures on the base eligible for the National Register of Historic Places, all of the structures contribute something to the general historic context of base development at Big Moose Island. Their rehabilitation and reuse would further NPS's educational programming plans and are complementary to the goal of incorporating navy base history into interpretive visitor information, a possible negligible to minor benefit to cultural resources. The removal of these buildings may have a negligible to minor impact on historic resources.

**Cumulative Impacts** - Some ongoing uses of the Schoodic District may threaten cultural resources. In addition, the projected increase in visitation under Alternative B could indirectly increase the risk of degradation of more fragile aspects of the cultural landscape (e.g., trails, undocumented cultural resources). Under Alternative B, visitor information and education would be increased and enhanced, presenting new opportunities to enlist the public's help in cultural resource preservation. Such efforts could result in significant cumulative historic preservation benefits of unknown intensity. In addition, the completion of cultural resource inventories, the determination and monitoring of acceptable visitation, and the revegetation of Little Moose Island social trails proposed under all alternatives would provide critical direction necessary for the park to avoid potential cumulative adverse effects to cultural resources within the Schoodic District. These combined efforts could result in an overall beneficial effect of unknown magnitude, possibly ranging from minor to major in intensity.



**Conclusions** - Impacts common to all alternatives and summarized in "Conclusions" under No Action also apply to Alternative B. These include benefits related to the inventory of cultural resources, the establishment of appropriate visitor levels, the proposed Schoodic Peninsula Historic District, traffic reduction along the Schoodic Loop Road, use of historic preservation guidelines, and management zoning designed for historic preservation, the revegetation of Little Moose Island social trails, and the acquisition of the U.S. Navy's collection, as well as negligible or minor adverse impacts associated with structure maintenance, structure modifications to provide universal access, and new trail construction on Little Moose Island.

Structure, pavement, and landscape restoration of buildings on the base could result in negligible to minor impacts on subsurface archeological resources. Creating new trails could have impacts, which could be adverse without surveys or beneficial in providing new information and avoiding impacts if surveys are completed first. Restoration of about 40 acres and the removal of some buildings could provide less obstructed views of the base, and a better sense of the features and layout of the original base, a negligible to minor benefit to cultural resources.

Exterior and interior alterations of the Rockefeller Building would be conducted in accordance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties* (1995), a minor to moderate, site-specific benefit. Restoring the landscape would provide minor, site-specific benefits to the historic integrity of the structure. The removal of ineligible buildings would likely have a negligible to minor impact to their remaining historic properties.

The increased availability of educational/interpretive visitor materials would result in negligible to moderate benefits; minor regional benefits are also possible.

Alternative B would result in about 65 additional vehicles per day and a minor increase in the probability and resulting impact of major road maintenance on the Schoodic Loop Road compared to the No Action Alternative. Alternative B would result in no impairment of cultural resources located at the Schoodic District.

### **Impacts of Alternative C: Collaborative Management (Preferred)**

**Analysis** - Increases in visitor and program use of park facilities, including those on the base, are the primary activities associated with impacts to cultural resources under Alternative C. The NPS would work collaboratively with partners to promote expanded educational and interpretive programming related to natural and cultural history, conservation, science, music and art. Programming would expand significantly over the No Action Alternative, but only moderately when compared to Alternative B. However, visitation would increase more dramatically. Alternative C would bring approximately 31,500 annual visitors to the Schoodic Education and Research Center and, by association, to park facilities in the study area. This is more than double that in Alternative B and a 17–18-fold increase over the No Action Alternative. As many as 350 visitors could participate in day programs at the base; overnight accommodations for up to 190 would be available.

The increased availability to visitors of educational/interpretive materials proposed under this alternative could help increase visitor understanding of the Schoodic District and its prior land use, including the navy base property. When compared to the other two alternatives, visitation is projected to increase under this proposal and, with it, so too does the risk of impacting archeological resources. Through appropriate informational materials that include cultural resource issues, NPS can further educate and involve visitors in historic preservation efforts. As with Alternative B, it is expected that an increase in educational and interpretive visitor information which includes historic preservation issues would result in an unknown, site-specific benefit to cultural resources, ranging from negligible to moderate in intensity. Minor regional benefits to cultural resources may also be realized through the enhanced information regarding the historic land use.

Under this alternative, buildings, pavement, and asphalt would be removed on approximately 16 acres, and natural vegetation allowed to regrow or planted. The removal of these structures may pose a negligible to minor, site-specific adverse impact in their potential to affect buried cultural deposits (prehistoric or historic), but

could be mitigated to negligible by the presence of a professional cultural resource specialist to monitor ground-disturbing activities.

When compared to the No Action Alternative, Alternative C would result in an increase in vehicular use of the Schoodic Peninsula roads as a result of an expanded SERC. The 6-mile Schoodic Loop Road is the focal point of the potentially eligible historic district on the Schoodic Peninsula and its condition and appropriate maintenance are primary considerations. Under this alternative, average traffic numbers will increase slightly, from 579 during 2000 when the base was occupied by the U.S. Navy, to 619 per day, as a result of increased visitation and program use of SERC. When compared to the No Action Alternative (454 trips per day), Alternative C would result in about 165 additional vehicles per day and a minor to moderate increase in the probability and resulting impact of major road maintenance on the Schoodic Loop Road.

Under Alternative C, approximately 16 acres of land now covered with buildings, pavement, or asphalt would be revegetated. The removal of buildings may provide less obstructed views from other areas of the park, as well as a better sense of the features and layout of the original base. The benefits to visitors from the restoring of some of the early cultural context of the base is likely to be only negligible or minor.

Under Alternative C, it is proposed that the exterior of the historic Rockefeller Building be preserved while its interior be rehabilitated for use by NPS and its partners. As in Alternative B, this structure would remain a focal point of park programs. Exterior and interior preservation activities would be conducted in accordance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties* (1995). The preservation and rehabilitation of eligible historic properties is considered a minor to moderate, site-specific benefit to the structure, a similar effect to that expected under Alternative B.

As under Alternative B, this alternative includes the proposal to re-create landscaping similar to that of the original Rockefeller Building in accordance with the 1934 grading and planting plans. The action would offer minor, site-spe-

cific benefits to the overall integrity of the Rockefeller Building site. No such action is proposed under the No Action Alternative. Actions under Alternative B would result in similar benefits as those proposed under this alternative.

In addition to plans to use the Rockefeller Building, reuse of several other base buildings is proposed under this alternative. Their rehabilitation and reuse furthers the development of an education and research center. Impacts to historic resources resulting from proposed use of other navy base structures under this alternative are considered negligible, with a potential minor, localized benefit realized related to the enhancement of historical interpretive visitor information, a result similar to that under Alternative B. Negligible impacts to the Rockefeller Building are possible through the removal of ineligible structures.

**Cumulative Impacts** - Some ongoing uses of the Schoodic District threaten cultural resources. In addition, projected increases in visitation are greater under Alternative C than in the other two alternatives and could indirectly result in greater degradation of more fragile aspects of the cultural landscape (e.g., trails, undocumented cultural resources). As visitor numbers increase, so too does the need to educate and involve the public in cultural resource protection. Under Alternative C, visitor information and education would be increased and enhanced, presenting new opportunities to enlist the public's help in historic preservation efforts. Such efforts could result in significant cumulative historic preservation benefits of unknown intensity. Completion of a comprehensive cultural landscape inventory, the determination and monitoring of acceptable visitation, and the revegetation of social trails on Little Moose Island would provide critical information necessary for the park to further avoid cumulative adverse effects to cultural resources within the Schoodic District. The involvement of additional partners would enhance the capacity of NPS to maintain cultural resources. Depending on the specific cultural resource involved, these combined efforts could result in an overall beneficial effect of unknown magnitude, possibly ranging from minor to major.

**Conclusions** - Impacts common to all alternatives and summarized in "Conclusions" under No Action also apply to Alternative C. These include benefits related to the inventory of cultural resources, the establishment of appropriate visitor levels, the proposed Schoodic Peninsula Historic District, traffic reduction along the Schoodic Loop Road, use of historic preservation guidelines, and management zoning designed for historic preservation, the revegetation of Little Moose Island social trails, and the acquisition of the U.S. Navy's collection, as well as negligible or minor adverse impacts associated with structure maintenance, structure modifications to provide universal access, and new trail construction on Little Moose Island.

Structure, pavement, and removal or restoration on the base could result in negligible to minor impacts on subsurface archeological resources. Creating new trails could have impacts, which could be adverse without surveys or beneficial in providing new information and avoiding impacts if surveys are completed first. Restoration of about 16 acres and the removal of some buildings could provide less obstructed views of the base, a negligible benefit to cultural resources.

Exterior and interior alterations of the Rockefeller Building would be conducted in accordance the *Secretary of the Interior's Standards for the Treatment of Historic Properties* (1995), a minor to moderate, site-specific benefit. Re-creating landscaping compatible with 1934 designs would provide minor, site-specific benefits to the historic integrity of the structure. The removal of ineligible buildings may have a negligible impact on the remaining historic properties.

The increased availability of educational/interpretive visitor materials would result in negligible to moderate benefits; minor regional benefits are also possible.

Alternative C would result in about 165 additional vehicles per day and a minor to moderate increase in the probability and resulting impact of major road maintenance on the Schoodic Loop Road compared to the No Action Alternative. However, increased participation by partners would enhance maintenance capacity. Alternative C would result in no impairment of cultural resources located at the Schoodic District.

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## IMPACTS TO VISITOR EXPERIENCE

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### Impacts Common to All Alternatives

All three alternatives call for the identification of acceptable levels of visitation over time, which may result in some restrictions regarding visitor access, especially in sensitive areas or at sites such as Schoodic Point which have the potential to reach unacceptable levels of crowding (more than 70 people at one time). Similarly, the development and use of management zones could create restrictions, and although these measures would also provide for the preservation of important resources, they could be seen as a minor to moderate adverse impact by visitors. The plan to improve the availability of information about the park could be helpful in educating people so that restrictions are accepted, and not viewed as an adverse impact.

The removal of the fence around the base area will create greater access to the base area by pedestrians. As a result of the fence removal, there could be negative long-term impacts as visitors begin to see more erosion and trampling. In addition, the appearance of the base area will be less military and more natural without the perimeter fence, a clear benefit to visitors.

The revegetation of social trails and the creation of an official maintained trail on Little Moose Island will increase the trail system of the Schoodic District, which would generally be viewed positively. The closure of some of the social trails could be a minor adverse impact for those users who have frequented those trails in the past, but improvements to other trails combined with a much better loop trail would offset the negative impact.

All three alternatives also call for allowing only low-impact recreational uses which are compatible with the quiet enjoyment of the island. This is in line with visitor surveys which found that the vast majority of visitors like the park just the way it is.

### Impacts of Alternative A: No Action

**Analysis** - Alternative A would result in the removal of few or no buildings on the base,

although perimeter fencing around the base would be eliminated, information to visitors would be available at the gatehouse, and five park employees would be located on the peninsula. These factors would increase the park-like feel of the base. However, since the base would be closed to general visitor use, the benefits of these few changes would not be widely experienced, and would therefore be negligible or minor. Also, since most buildings would be maintained and placed in layup status, the current military atmosphere in the area of the base would largely remain. Some visitors to the area would find the appearance of so many unused buildings unattractive.

The Rockefeller Building and powerhouse will simply be maintained for possible future renovation under this alternative, rather than altered inside for reuse, so there will be no short-term impact from construction noise or dust on the visitor experience.

Under this alternative, there will be no educational or interpretive programs for the general public; however, there is a projected use by school groups of approximately 20 participants per day. This will be a much smaller human presence than when the base was in operation, so it will create a quieter and more peaceful experience for those visitors who had been near the base before its closure. Since most people had little or no contact with the base, the impact to recreational visitors would be minor.

The Navy Morale, Welfare, and Recreation Division operated a campground at the former base to serve active-duty, reserve, and retired military personnel and their families. The campground consists of 14 sites (10 with full hook-ups, two with water, and two with no hook-ups). Under Alternative A, the occupancy rate of the campground would be significantly reduced. The campground would be primarily used by volunteers and researchers conducting projects in the park. This alternative would have 22 rooms or campsites available for overnight visitor use, resulting in negligible benefits to the visitor experience.

Since both peak and off-peak recreational use will likely decrease relative to 2001 conditions, there would be no overall adverse impact on the perception of crowding and trail erosion as a

result of this proposal. Because navy personnel are no longer using the Schoodic Loop Road, traffic has been reduced, especially in the early morning and late afternoon. Nearly half the visitors to Schoodic surveyed by NPS (NPS 2002) would prefer no cars on the road the day of their visit. Without base commuter traffic and the Schoodic Education and Research Center, the probability of this or of encountering only a very few cars during a trip to the peninsula would increase. Accounting for relative percentages of daily commuter and seasonal recreational traffic on the Schoodic Loop Road at Schoodic, Alternative A could result in as many as 50,000 fewer car trips or 130 on average per day than when the base was fully occupied. Although this could offer moderate or even major benefits to recreational visitors, the bulk of visitors use the roads during midday or afternoon. Therefore the benefit of fewer commuter cars is not likely to affect the average visitor experience or provide more than negligible or minor beneficial impacts to the visitor experience. Also, although few or no additional users of the park facilities at Schoodic would be present, there would be negligible beneficial impacts to those that are present on crowding during early and late off-peak hours in this alternative compared to 2001 conditions.

**Cumulative Impacts** - Visitation to the Schoodic District would likely continue to increase slowly, as will use of the entire park (U.S. Department of Transportation 2002). At about 1% per year (the steady rate of growth for the entire park since 1990), visitation to Schoodic will increase by 10–15% over the life of the plan, even with no base reuse. This will add to current crowding. Although most indicators of quality measured by surveys in 2000 and 2001 showed visitors were not experiencing the feeling of being crowded while at Schoodic, visitation to Schoodic Point did average around 70 people during midday. This is the number of people the average survey respondent felt was both unacceptable and the point at which NPS should begin restricting use. Even the slow addition of visitors to the peninsula which would take place under this alternative is likely to have a minor to moderate impact on visitors to Schoodic Point during this time of day.

Increasing visitation not related to the base reuse or any of the actions proposed in this

*Draft GMPA/EIS* will also increase the number of cars on the Schoodic Loop Road, visitation to Frazer Point (another location where visitors were surveyed on their perception of crowding) and the rate of resource damage on trails. A 10–15% increase in the number of cars on the road or visitors to Frazer Point would not have more than a minor impact on visitor experience at these locations. This is because there is a large degree of difference between current conditions and the levels at which visitors would find crowding unacceptable. However, resource damage on trails is already at the level at which visitors believe NPS should take preventive action or apply use restrictions. Additional use (10–15%) of these trails would likely result in more impact and more visitors finding that impact unacceptable.

**Conclusions** - All alternatives anticipate the use of zoning and monitoring to identify acceptable visitation, a possible minor to moderate impact on accessibility and the visitor experience. The reduction in human activity at the base relative to 2001 conditions is a minor benefit to visitors seeking a peaceful experience. Closing social trails and creating a loop trail on Little Moose Island would have relative benefits to visitors, although some may experience minor adverse impacts from closing social trails.

Negligible to minor benefits to recreational users of park facilities in the study area from a reduction in crowding at those facilities, and from reduced commuter traffic relative to 2001 conditions are likely. However, this benefit is likely to be offset by growth in visitation to Acadia National Park, which is unrelated to reuse of base facilities.

Even the slow addition of visitors to the peninsula is likely to have a minor to moderate impact on visitors to some park facilities, such as Schoodic Point and the trails to and from Schoodic Head. Less human activity at the base than under 2001 conditions will contribute to a quieter and more peaceful experience for visitors to the peninsula, a minor benefit.

Because very few or no structures will be removed, no or few short-term construction-related impacts will occur, such as noise and dust that would occur under Alternatives B and C. This is a possible negligible short-term

impact of No Action compared to 2001 conditions when the base was operated by the U.S. Navy. No impairment of the visitor experience would occur.

### **Impacts of Alternative B: National Park Service Management**

**Analysis** - Alternative B would offer a distinctly different visitor experience than the No Action Alternative. The Schoodic Education and Research Center would be established at the former navy base. Special events would open the base to the public. These events could host as many as 400 people. Although still relatively few compared to when the base was occupied by the U.S. Navy, a significant increase in the numbers of people and cars would be obvious compared to the No Action Alternative. Many structures would be removed over several years. Of all the alternatives, this alternative would involve the most revegetated landscape. Portions of the Rockefeller Building would be open to general park visitors.

The removal of up to 15 of the base buildings would have adverse impacts to both program participants and visitors to the study area within earshot of the construction. As noted above, the large majority of visitors to the peninsula now come because the area is peaceful, natural, and relatively uncrowded. For these visitors, construction noise and dust over what could be a several-year period would have major adverse impacts to their visitor experience, and may even cause them to seek other, quieter places to visit. For program participants or visitors who do not have the preconception of the peninsula as a quiet and undisturbed area, the construction noise and dust may have only moderate impacts.

In addition to noise and dust, heavy equipment vehicles would use the Schoodic Loop Road to access the base. This slow-moving construction traffic could have adverse impacts on some visitors, especially given that nearly half those surveyed (NPS 2001, 2002) indicated they would prefer to have no cars on the road other than their own, and that scenic driving was cited as the most popular activity in the park. However, unless construction involves many new vehicles using the road throughout the day, it is unlikely

that traffic density would grow from its current average of 2.8 vehicles to the 7.5 visitors felt would be unacceptable, and so the impact would likely be no more than a minor one.

Building removal would eventually lead to the revegetation of some 40 acres of disturbed landscape, which could have a minor or moderate beneficial effect on visitor experience with regards to scenic beauty, wildness, and naturalness. The former base area would eventually look more campus-like and natural than it does presently.

Under this alternative, the historic Rockefeller Building and powerhouse would be restored and retrofitted for educational and interpretive programs and could include such features as laboratories, classrooms, exhibit space, and accommodations for students and researchers. This, along with the restoration of the surrounding landscape, could have a minor to moderate localized beneficial impact on visitor perception of scenic beauty on the base. These new educational and interpretive opportunities would be seen as a beneficial impact by those visitors who felt they were lacking, and by new visitors as well, but would be seen as an adverse impact by those visitors who wanted the base to stay exactly as it is. During the actual restoration and renovation process, however, there could be the same types of temporary adverse impacts on visitor experience from noise and dust described above for building removal. Because these impacts would last for a shorter period of time, they would likely be short-term, minor or moderate in nature.

A reduction in vehicle traffic from the baseline year of 2001 (when navy personnel were still commuting to the base) could have a beneficial effect on visitor experience with regards to the perceptions of solitude and naturalness. However, since the loss of commuter traffic would occur at times of the day when visitors are not using the peninsula, and since construction traffic could be the highest for this alternative, the benefit is likely to be only a negligible or minor one. Compared to the No Action Alternative, Alternative B is likely to increase traffic by about 5,000 vehicles per year. During the summer months, when traffic is more concentrated, the increase in program participants

could add 40–50 cars per day to the Schoodic Loop Road, a 9–11% increase. Since these would be visitors, rather than commuters, the chances they would be on the road during mid-day or afternoon are greater, as are the chances they would adversely affect the visitor experience of crowding on the road. However, the loss of commuter vehicles would mitigate this increase, and an 11% increase would not bring midday traffic near to levels where volume is considered unacceptable.

The increase in both day use and overnight guests using former base lodging could have an adverse impact on crowding during peak as well as early and late off-peak hours, especially if program participants are taken out in large groups to view key park sites. If program participants are taken to these popular sites during peak-use times, the level of crowding could increase past the point which survey respondents felt was tolerable. At Schoodic Point, visitation at peak-use times is already above the level people find acceptable, and the addition of even a few more visitors at these times would increase crowding to the point at which respondents felt use should be restricted. This would create a major adverse impact for visitors to Schoodic Point, since it is the most popular area in the park, and since crowding is such an important issue to visitors. Schoodic Point is also within easy walking distance of the former navy base, and so is likely to be a favorite site to visit or study.

At Frazer Point, counts indicated that 20–25 people were present at peak-use times. This is slightly below the level which people indicated they would prefer (35.3 people at one time), and is well below "acceptable" and "tolerable" levels. It is therefore less likely that use by program participants would have more than minor impacts at Frazer Point.

Although the overnight use will be less than in 1999 when navy personnel were still on the base, it will be much greater than under the No Action Alternative. Overnight visitor use would create more nighttime illumination in the area of the base, but the effect on visitor experience of the night sky would probably be negligible.

Changes in parking and circulation designed to make the park more hospitable to pedestrians could have a minor beneficial impact on visitor experience with regards to wildness and naturalness, since fewer cars would be in circulation in some areas. If parking information is made available at the entrance to the park, and trail-heads are clearly marked, the benefits would be greater.

A recent survey conducted by NPS of visitors to Schoodic (Manning et al. 2002) asked those using park trails about resource damage there. Most indicated existing resource damage was fairly high and believed it was the upper limit of damage NPS should allow. Creating trails to connect the former navy base to the Schoodic Head trail system could provide benefits in reducing the need to drive to trailheads. This increase in accessibility would help to mitigate erosion on existing trails, but would require education through signs, brochures, or other means, and erosion control in some cases to prevent existing moderate impacts to the visitor experience on Schoodic Head trails from becoming major ones.

Although NPS does not plan to promote the Schoodic District per se, increased availability of information, as well as the word-of-mouth promotion which could occur after program participants get to see the park, could actually result in growth in visitor use that is beyond the current projection of 1% annually. If educational and interpretive programs turn out to be more popular than expected and grow accordingly, impacts on crowding at park facilities and trails in the study area will also increase in severity.

**Cumulative Impacts** - The cumulative impacts identified above for the No Action Alternative would apply to Alternative B as well.

**Conclusions** - All alternatives anticipate the use of zoning and monitoring to identify acceptable visitation, a possible minor to moderate impact on accessibility and the visitor experience. The reduction in human activity at the base relative to 2001 conditions is a minor benefit to visitors seeking a peaceful experience. Closing social trails and creating a loop trail on Little Moose Island would have relative benefits to visitors,

although some may experience minor adverse impacts from closing social trails.

Alternative B would result in increased human activity at the base, and an increase in the perception of crowding at park facilities, trails and roads relative to No Action. Noise and dust associated with the removal of up to 15 of the base buildings could have moderate to major impacts on visitors to the peninsula. Minor to moderate benefits to visitor experience from the restoration of about 40 acres on the base to natural conditions is also likely. The use of the Schoodic Loop Road by construction vehicles could have additional minor impacts to visitors who have sought out the peninsula for quiet, scenic driving.

Rehabilitation of the Rockefeller Building would have short-term minor to moderate adverse impacts on visitor perception of wildness, naturalness, and peace and quiet during the actual renovation process, but would have long-term minor to moderate beneficial impacts on these same indicators after restoration.

Reductions in traffic related to base closure would provide negligible to minor benefits to visitors seeking a solitude experience, but increases related to program use would have minor adverse impacts on traffic volumes compared to the No Action Alternative.

Growth in visitation could also create minor to moderate adverse impacts on visitor perception of crowding at popular park sites in the study area. Increased visitor and program participant use of trails would increase perceptions of crowding and erosion; these would be somewhat offset by comprehensively integrating and adding to trails in the study area, although more intense mitigation is needed to prevent existing moderate impacts on some trails from become major ones. Greater overnight use compared to No Action would have minor impacts on the visitor experience of a natural night sky.

Changes in parking and circulation designed to make the park more hospitable to pedestrians could have a minor beneficial impact on visitor experience. No impairment of the visitor experience would occur.



### **Impacts of Alternative C: Collaborative Management (Preferred)**

**Analysis** - The changes in the visitor experience described under Alternative B would occur in even more dramatic fashion in Alternative C. A significant feature of Alternative C is the option for alternative uses such as retreats, conferences, and special events. These types of activities could presumably bring large numbers of people into the base area at once. Visitors who are new to the park, as well as some current visitors, may well find these events fun and enjoyable. It is conceivable, however, that visitors who were accustomed to the park's quiet and solitude might be significantly adversely impacted by these currently unspecified events, although high levels of use at the base existed during the 2001 survey when most visitors were satisfied with the park as it was.

Under this alternative, fewer structures would be removed than in Alternative B, but more than in the No Action Alternative. Because removal could take less time, the noise and dust impacts relative to Alternative B would also be reduced. For the large majority of visitors to the peninsula who now come seeking a peaceful, quiet experience, the impact of construction compared to No Action would be moderate to major. For program participants or visitors who do not have the preconception of the peninsula as a quiet and undisturbed area, the construction noise and dust may have only minor or moderate impacts. Impacts from construction traffic would also be less severe, and may only have negligible to minor impacts on visitors who come to Schoodic for a scenic driving experience.

Although construction impacts would not last as long, Alternative C would also not create as much open space through removal of buildings as Alternative B. Only about 16 acres of land would be restored to natural conditions, a negligible to minor beneficial impact on the visitor experience of the base compared to No Action.

Under this alternative, the historic Rockefeller Building and powerhouse would be restored and retrofitted for educational and interpretive programs and could include such features as laboratories, classrooms, exhibit space, and accommodations for students and researchers.

This, along with the restoration of the surrounding landscape, could have a minor to moderate localized beneficial impact on visitor perception of scenic beauty on the base. During the actual restoration and renovation process, however, there could be the same types of temporary adverse impacts on visitor experience from noise and dust described above for building removal. Because these impacts would last for a shorter period of time, they would likely be short-term minor or moderate in nature.

Compared to No Action, there would be an increase in traffic of about 10,000 vehicles per year. Since almost a third of the annual vehicles are present during the summer months, this could mean as many as 100 more cars per day. Since visitor counts showed that people entered the park between 8:00 a.m. and 8:00 p.m. and that most visitors came between 10:00 a.m. and 2:00 p.m., this translates to about 7.3 more cars on the road on average throughout the day, with numbers being greater at midday. Additional visitation not related to the Schoodic Education and Research Center would add to these traffic counts, and commuter trips related to base closure could reduce them somewhat, although commuter traffic does not generally occur at the same time as peak visitation. Since visitors saw 2.8 cars on the road in 2001, and would tolerate no more than 7.8, it is quite probable that traffic will exceed the level of tolerance for visitors at midday during the peak season. This would be a moderate to major impact with regards to traffic. This impact could be reduced with the expansion of the ferry and other public transportation.

An increase in program participants of this magnitude, including up to 190 overnight guests, could have major impacts on crowding and the visitor experience at popular park facilities in the study area, both during peak and off-peak hours. Since the former navy base is within easy walking distance of Schoodic Point, it may be particularly affected. Visitation to Schoodic Point is already above the level which people find acceptable, and the addition of even a few more people at these times would increase crowding to the point at which people felt use should be restricted. This would create a major adverse impact for visitors to Schoodic Point, since it is the most popular area in the park, and since crowding is such an important issue to visitors.

At Frazer Point, counts indicated that 20–25 people were present at peak-use times. This is slightly below the level which people indicated they would prefer (35.3 people at one time), and is well below "acceptable" and "tolerable" levels. The addition of 350 program participants per day, many of whom will seek developed sites such as Frazer or Schoodic Point during their stay, could increase crowding to levels beyond which those surveyed indicated they would prefer, but is not likely to increase it to beyond acceptable levels, and so is a moderate impact.

Greater numbers of overnight guests could also result in more artificial illumination at night, and could have a minor adverse impact on views of the night sky compared to No Action.

Changes in parking and circulation designed to make the park more hospitable to pedestrians could have a minor beneficial impact on visitor experience by creating a campus-like and natural feel, since fewer cars would be in circulation in some areas. If parking information is made available at the entrance to the park, and trailheads are clearly marked, the benefits would be greater.

An increase in the use of trails in the study area could result in major impacts to the visitor experience on those trails, as a recent survey (NPS 2001, NPS 2002) indicated most respondents believe erosion and damage to vegetation on Schoodic Head trails is already at the limit of what NPS should allow.

Although visitation is expected to increase by 1% per year, there will be greater numbers of program participants than with Alternative B, so this growth could increase beyond this projection as people return with friends and promote the park through word-of-mouth. The resulting impacts to park facilities and trails would be greater as a result.

**Cumulative Impacts** - The same cumulative impacts as identified above for No Action would apply to Alternative C.

**Conclusions** - All alternatives anticipate the use of zoning and monitoring to identify acceptable visitation, a possible minor to moderate impact on accessibility and the visitor experience. Use of design guidelines would improve the campus-

like feel of the base, a minor benefit. The reduction in human activity at the former navy base relative to 2001 conditions is a minor benefit to visitors seeking a peaceful experience. Closing social trails and creating a loop trail on Little Moose Island would have relative benefits to visitors, although some may experience minor adverse impacts from closing social trails.

Alternative C would result in increased human activity at the base, and an increase in the perception of crowding at park facilities, trails, and roads relative to No Action. Noise and dust associated with the removal of up to 5–10 of the base buildings could have minor to major impacts on visitors to the peninsula. Negligible to minor benefits to the visitor experience from the restoration of about 16 acres on the base to natural conditions is also likely. The use of the Schoodic Loop Road by construction vehicles could have additional negligible to minor impacts to visitors who have sought out the peninsula for quiet, scenic driving.

The rehabilitation of the Rockefeller Building would have short-term minor to moderate adverse impacts on visitor perception of wilderness, naturalness, and peace and quiet during the actual renovation process, but would have long-term minor to moderate beneficial impacts on these same indicators after restoration.

Reductions in traffic related to base closure would provide negligible to minor benefits to visitors seeking a solitude experience, but increases related to program use would have moderate to major adverse impacts on traffic volumes compared to the No Action Alternative. Growth in visitation could also create moderate to major adverse impacts on visitor perception of crowding at popular park sites in the study area. Increased visitor and program participant use of trails would increase perceptions of crowding and erosion. Greater numbers of overnight guests could result in a minor adverse impact on views of the night sky compared to No Action.

Changes in parking and circulation designed to make the park more hospitable to pedestrians could have a minor beneficial impact on visitor experience by creating a campus-like and natural feel. No impairment of the visitor experience would occur.

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## IMPACTS TO SOCIOECONOMIC ENVIRONMENT

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### Visitor Impacts from Acadia National Park

In 2000, Daniel Stynes and Dennis Propst at Michigan State University developed the Money Generation Model Version 2 (MGM2) based on a National Park Service economic model that estimates the economic benefits of national parks for regional economies (Stynes et al. 2000). MGM2 estimates the impacts that park visitors have on the local economy in terms of their contribution to sales, income, and jobs in the area. Stynes et al. expanded the original model to include the economic effects of NPS salaries, park construction projects, and other park-related activities; and expenditures by other outside parties, such as state spending for park access roads and dollars spent by outside interests for marinas, motels, restaurants, and other park-related capital development projects. The economic model produces quantifiable measures of park economic benefits that can be used for planning, concessions management, budget justifications, policy analysis, and marketing.

### Impacts Common to All Alternatives

In 2001, recreation visits to Acadia National Park totaled 2.52 million. According to *Economic Impacts of Selected National Parks; Update to Year 2001* (Stynes and Sun 2002), local day visitors contributed 5% of overall recreation visits, day visitors from other regions 25%, and visitors staying at lodges and campsites were 60% and 10%, respectively. The 2.52 million recreation visits were converted to 820,000 party days (the number of days each visitor party spends in the local region based on an average of three people per visitor party), which was the spending unit in the MGM2 analysis. On average, visitors spent \$165 per party per day at the local area. Total visitor spending was estimated to be \$134.85 million in 2001.

The \$134.85 million spent by visitors to Acadia had a direct economic impact of \$116.02 million in sales, \$41.05 million in personal income (wages and salaries), \$61.60 million in value added, and 2,830 jobs. Among all sales, \$50.65 million was from the lodging sales, \$29.17 mil-

lion from food and drinking places, \$11.86 million from admission fees, and \$12.97 million from the retail trade. As visitor spending circulates through the local economy, secondary effects created additional \$19.64 million in personal income and 765 jobs. In summary, visitors to Acadia spent \$134.85 million dollars in 2001, which supported a total of \$170.12 million in sales, \$60.69 million in personal income, \$95.52 million in value added (the sum of employee compensation, proprietary income, and indirect business tax), and 3,594 jobs (Stynes and Sun 2002).

Assuming a steady rate of growth of 1% annually with 2.52 million recreation visits in 2001 as the basis, an additional 406,000 annual recreation visits are projected for Acadia by 2015. The additional 406,000 recreation visits can be converted to 132,000 party days according to the MGM2 formula. Assuming visitors to Acadia spend \$165 dollars per party per day at the local area, total visitor spending would increase by \$21,780,000 (current value) by 2015. This new spending would support an annual total of \$27.48 million in sales, \$9.80 million in personal income, \$15.43 million in value added, and 580 jobs.

In estimating the economic impact of the three alternatives, it is assumed that additional benefits would accrue from attracting visitors to new programs and activities at the Schoodic District beyond the projected increase in park visitation.

### Impacts of Alternative A: No Action

**Analysis** - As noted above, Acadia's annual recreation visits are projected to increase by 1% per year from 2001 to 2015, which will result in the corresponding economic benefits described above. In addition, this alternative would attract about 1,800 visitors to park programs and activities annually.

Assuming that half the 1,800 visitors would be visiting Acadia National Park in any case, there would be a net of 900 new visitors drawn to the park by the programs and activities at Schoodic. Assuming that the 900 new visitors would spend an average of \$55 per person per day for three days, Alternative A would increase annual visi-

tor spending by \$148,500 (current value) by 2015. This new spending would support an annual total of \$187,000 in sales, \$67,000 in personal income, \$105,000 in value added, and 4 jobs. The benefits of this alternative would be negligible.

Additional economic benefits of unknown magnitude from the spending of salaries for employees at Schoodic and from the secondary effects of visitor spending would occur in the local community. Staff may occupy housing vacated by navy personnel upon closure of the base, with a resulting negligible benefit to the rental or housing market locally. If they reside in the community, the local unemployment rate will decrease very slightly.

**Cumulative Impacts** - The gain in economic prosperity associated with a small program staff and 1,800 participants, as well as the increase in visitation expected regardless of the alternative, is completely offset by the adverse impact to the local economy as a result of base closure by the U.S. Navy. In the FY 1997, the Naval Security Group Activity Winter Harbor employed 505 enlisted and civilian personnel, with over 300 living in nearby towns, including military housing in Winter Harbor. The total payroll of the navy facility was \$10,900,000.

A recent study completed by the University of Maine (Gabe and Allen 2000) indicates impacts to the local community's economy related to the spending of this payroll are likely. The indirect impact of the base closing includes the decrease in spending by the U.S. Navy at local businesses and subsequent decreases in purchases made by these businesses at other enterprises in Hancock County. This amount was estimated by University of Maine analysts to be \$1,823,351 annually, with a one-time loss of 90 jobs. The induced economic impact results in a decrease in personal income to other workers in Hancock County, which was estimated to be \$3,957,206 annually, with a one-time loss of 196 jobs. According to the University of Maine study, Hancock County is being faced with a total economic impact of \$16,680,557 due to the closing of the navy base.

In addition to direct economic losses, navy personnel occupied many social niches in the

community, including as parents of school-aged children, sports coaches, church attendees, and other important roles. Approximately 70–75 children of base personnel attended local schools, and more than 80% lived off base (NPS 2002 visitor survey) in Winter Harbor and other local communities. Infrastructure, such as water, sewer, roads, power, etc., was sized to some degree to accommodate 350–500 base personnel. Housing was also rented or purchased by navy personnel. The closing of the base had adverse impacts on all of these economic and social factors for the community.

**Conclusions** - Increases in visitation to Schoodic independent of the reuse scenario would bring negligible benefits to the local economy. The addition of 1,800 annual program participants and four jobs to the region would result in additional negligible benefits to the economy in the form of increased spending, a slight reduction in unemployment, and a possible slight reduction in housing vacancy. These small benefits would be outweighed by significant adverse impacts to spending, jobs, personal income, community infrastructure, housing, schools, and the social fabric of the region resulting from base closure by the U.S. Navy.

#### **Impacts of Alternative B: National Park Service Management**

**Analysis** - As noted above, Acadia's annual recreation visits are projected to increase by 1% per year from 2001 to 2015, which will result in the corresponding economic benefits described above. In addition, this alternative would attract about 13,500 new visitors to park programs and activities annually at the Schoodic Education and Research Center.

Assuming that half the 13,500 visitors would be visiting Acadia National Park in any case, there would be a net of 6,750 new visitors drawn to the park by the programs and activities at the Schoodic Education and Research Center. Assuming that the 6,750 new visitors would spend an average of \$55 per person per day for three days, Alternative B would increase annual visitor spending by \$1.11 million (current value) by 2015. This new spending would support an annual total of \$1.41 million in sales, \$501,000 in

personal income, \$789,000 in value added, and 30 jobs. This would represent a minor benefit (5%) over visitor spending for Alternative A.

Additional economic benefits of unknown magnitude from the spending of salaries for employment at Schoodic and from the secondary effects of visitor spending would occur in the local community. Staff may occupy housing vacated by the navy personnel upon closure of the base, with a resulting negligible to minor benefit to the rental or housing market locally. If they reside in the community, the local unemployment rate will decrease slightly.

**Cumulative Impacts** - The same adverse impacts identified under No Action for base closure would apply to Alternative B as well. However, Alternative B would go further in mitigating these adverse impacts by adding more program participants and staff than Alternative A.

**Conclusions** - Increases in visitation to Schoodic independent of the reuse scenario would bring minor benefits to the local economy. The addition of 13,500 annual program participants and 30 jobs to the region would result in additional minor benefits to the economy relative to 2001 conditions in the form of increased spending, a slight reduction in unemployment and a possible slight reduction in housing vacancy. Minor benefits to the local economy and to local schools, housing, unemployment, and social facets of the community relative to No Action are possible. While socioeconomic benefits of Alternative B would be outweighed by the adverse impacts from base closure, Alternative B would go further in reversing overall losses in spending.

#### **Impacts of Alternative C: Collaborative Management (Preferred)**

**Analysis** - As noted above, Acadia's annual recreation visits are projected to increase by 1% per year from 2001 to 2015, which will result in the corresponding economic benefits described above. In addition, this alternative would attract about 31,500 new visitors to park programs and activities annually at the Schoodic Education and Research Center.

Assuming that half the 31,500 visitors would be visiting Acadia National Park in any case, there would be a net of 15,750 new visitors drawn to the park by the programs and activities at SERC. Assuming that the 15,750 new visitors would spend an average of \$55 per person per day for three days, Alternative C would increase annual visitor spending by \$2.60 million (current value) by 2015. This new spending would support an annual total of \$3.29 million in sales, \$1.17 million in personal income, \$1.84 million in value added, and 69 jobs. This would represent a moderate benefit (12%) over visitor spending for Alternative A.

Additional economic benefits of unknown magnitude from the spending of salaries for employees at Schoodic and from the secondary effects of visitor spending would occur in the local community. Staff may occupy housing vacated by navy personnel upon closure of the base with a resulting negligible to moderate benefit to the rental or housing market locally. If they reside in the community, the local unemployment rate will decrease as well.

**Cumulative Impacts** - The same adverse impacts identified under No Action for base closure would apply to Alternative C as well. The University of Maine noted that the closing of the navy base would have a total negative economic impact of \$16,680,557. The payroll was \$10,900,000. There will be a decrease in spending by the U.S. Navy at local businesses and subsequent purchases by those businesses of \$1,823,351. This spending decrease in the community will have an induced economic impact of a decrease of \$3,957,206 in personal income to other workers in Hancock County.

Alternative C is expected to add \$2.6 million in spending and as many as 69 new jobs to the region. It would offset some of the loss of the U.S. Navy spending and could have moderate positive impacts on unemployment, housing, vacancies, and the unfilled capacities of community infrastructure, schools, and the fabric of the region.

**Conclusions** - Increases in visitation to Schoodic independent of the reuse scenario would bring negligible to minor benefits to the local economy. The addition of 31,500 annual program participants and 69 jobs to the region

would result in moderate benefits to the economy both relative to 2001 conditions and the No Action Alternative in the form of increased spending, a slight reduction in unemployment, and a possible slight reduction in housing vacancy. Moderate benefits are possible for the local economy and to the local schools, housing, unemployment, and social facets of the community relative to No Action. This alternative would offset part of the economic loss related to base closure and offer additional benefits in direct and indirect spending.

**TABLE 10. SUMMARY OF IMPACTS (SHEET 1 OF 6)**

Activity	Alternative A: No Action	Alternative B: NPS Management	Alternative C: Collaborative Management (preferred)
<b>AIR QUALITY</b>			
Implementation of public transportation	Minor local benefit	Same as No Action	Same as No Action
Study of expanded bicycle connections along the Schoodic Loop Road	Minor local benefit	Same as No Action	Same as No Action
Limiting parking in the park; informing visitors at entrance	Minor benefit	Same as No Action	Same as No Action
Use of base structures containing < 1% asbestos	Negligible adverse impact	Similar to No Action but slightly higher risk as more buildings would be occupied	Similar to No Action but slightly greater risk than other two alternatives as more buildings would be occupied
Reductions in vehicular use at Schoodic and in the use of boilers on the base	Major local benefit compared to year 2001; negligible regional benefit	Minor increase in emissions compared to No Action	Minor to moderate increase in emissions compared to No Action
<b>WATER RESOURCES</b>			
Changes in use/demand for drinking water	Negligible to minor benefit to groundwater resources from reduced demand compared to 2001 conditions	Negligible to minor impacts to groundwater resources compared to No Action	Negligible to minor impacts to groundwater resources but greater than Alternative B
Changes in wastewater discharge	Moderate to major benefit to water quality in Arey Cove from reduced discharge compared to 2001 conditions	Unknown, but possibly moderate adverse impact to Arey Cove water quality. Increased discharge compared to No Action	Unknown, but possibly moderate to major adverse impact to Arey Cove water quality
Soil erosion, petroleum products from vehicles	Negligible to minor adverse impacts to surface waters	Same as No Action	Same as No Action
<b>SOILS</b>			
Revegetation of social trails on Little Moose Island (soil stabilization)	Minor localized benefit	Same as No Action	Same as No Action
Creation of 0.75 mile of trail on Little Moose Island	Negligible to minor adverse impacts	Same as No Action	Same as No Action
Erosion caused by general increase in use of Schoodic (with no other changes)	Moderate to major cumulative impacts	Same as No Action	Same as No Action
Reductions in erosion due to visitor use controls in critical habitats	Benefit of unknown magnitude	Same as No Action	Same as No Action
Reduction of fuel storage, vehicle maintenance, hazardous material handling	Minor to moderate local benefit	Same as No Action	Same as No Action
Changes in levels of trail use (new program participants)	Minor benefit to soils compared to ongoing moderate adverse impacts under 2001 conditions	Negligible to minor adverse impacts compared to No Action	Minor adverse impacts compared to No Action
Increased use of peninsula trails by visitors (cumulative impact)	Increase existing impacts from moderate to major	Same as No Action	Same as No Action



**TABLE 10. SUMMARY OF IMPACTS (SHEET 2 OF 6)**

Activity	Alternative A: No Action	Alternative B: NPS Management	Alternative C: Collaborative Management (preferred)
<b>SOILS (continued)</b>			
Removal of base structures; landscape revegetation	No effect (no structure removal/ landscape revegetation proposed)	Major localized benefit to soils (40 acres revegetated)	Moderate localized benefit to soils (16 acres revegetated)
<b>VEGETATION</b>			
Inventory/monitoring of natural resources, determination of acceptable visitation levels, use of management zoning	Major localized benefits for vegetation on Little Moose Island, minor to moderate benefits in other currently less disturbed vegetative communities	Same as No Action	Same as No Action
Revegetation of social trails on Little Moose Island and creation of a 0.75 mi. trail	Major local benefits for patches of rare plants and coastal headland vegetation	Same as No Action	Same as No Action
Monitoring/control of aggressive non-native plants	Minor benefit for freshwater wetlands on the peninsula	Same as No Action	Same as No Action
Acquisition of a conservation easement to the north of the existing Schoodic District	Minor to major benefits to forest vegetation on the peninsula	Same as No Action	Same as No Action
Removal of unused structures (e.g., fencing) in the study area	Minor to moderate localized benefits to vegetation	Same as No Action	Same as No Action
Removal of base buildings; vegetation restoration	No effect (no building removal, vegetation restoration proposed)	Major local benefit (40 acres restored)	Moderate local benefit (16 acres restored)
Changes in level of trail use (new program participants)	Moderate benefits to vegetation relative to 2001 use (very few program participants)	Negligible impacts with limited trail use in fragile areas	Negligible impacts with limited trail use in fragile areas
Increased visitor use of study area trails (cumulative impact)	Could increase current impacts to vegetation from moderate to major unless mitigated	Same as No Action	Same as No Action
<b>COASTAL RESOURCES</b>			
Inventory/monitoring of natural resources, determination of acceptable visitation levels, management zoning, appropriate visitor information	Minor to moderate benefits to coastal resources in intertidal areas of the peninsula; moderate or major localized benefits for common eiders and other nesting seabirds	Same as No Action	Same as No Action
Revegetation of social trails on Little Moose Island and creation of a 0.75 mi. trail	Moderate localized benefits for coastal vegetation	Same as No Action	Same as No Action

**TABLE 10. SUMMARY OF IMPACTS (SHEET 3 OF 6)**

Activity	Alternative A: No Action	Alternative B: NPS Management	Alternative C: Collaborative Management (preferred)
<b>COASTAL RESOURCES (continued)</b>			
Addition of new educational programs	Negligible benefit (minimal programming)	Moderate or major localized impacts to intertidal area	Same as Alternative B
Unrestricted use of intertidal areas by program participants	Negligible to minor benefits to common eiders and other seabirds relative to 2001 conditions	Moderate to major local impacts to a variety of resources; impacts to common eiders and other seabirds additive and adverse unless mitigated	Same as Alternative B, with major impacts more likely
<b>WILDLIFE</b>			
Inventory/monitoring of natural resources, determination of acceptable visitation levels, management zoning	Major localized benefits for wildlife, including the federally threatened bald eagle	Same as No Action	Same as No Action
Acquisition of a conservation easement to the north of the existing Schoodic District	Minor to major benefits to wildlife	Same as No Action	Same as No Action
Implementation of public transportation	Negligible to minor benefits for wildlife	Same as No Action	Same as No Action
Base building removal, vegetation restoration	No effect (no building removal or restoration proposed)	Minor, localized benefit to wildlife (40 acres restored)	Negligible to minor benefit to wildlife (16 acres restored)
Program use	Possible unknown benefits of fewer people related to base closure	Minor to moderate impacts if use is unregulated; no more than minor if restricted; minor to moderate impacts to nocturnal mammals	Minor to moderate impacts if use is unregulated; no more than minor if restricted; moderate impacts to nocturnal mammals
Increased visitor use of study area (cumulative impact)	Negligible to minor adverse effect in vicinity of trails	Same as No Action	Same as No Action
<b>CULTURAL RESOURCES</b>			
Inventory/monitoring of cultural resources, determination of acceptable visitor levels	Minor to major benefits to cultural resources	Same as No Action	Same as No Action
Revegetation of social trails on Little Moose Island	Minor to major, site-specific benefits to archeological resources	Same as No Action	Same as No Action

**TABLE 10. SUMMARY OF IMPACTS (SHEET 4 OF 6)**

Activity	Alternative A: No Action	Alternative B: NPS Management	Alternative C: Collaborative Management (preferred)
<b>CULTURAL RESOURCES (continued)</b>			
Ground disturbance related to trail revegetation and construction of a new 0.75-mile trail on Little Moose Island	Negligible to minor impacts to archeological resources	Same as No Action	Same as No Action
Nomination of proposed Schoodic Peninsula Historic District to the NRHP, rezoning as "Preservation Subzone"	Minor to moderate benefits to cultural resources, local to regional in scope	Same as No Action	Same as No Action
Maintenance activities at Schoodic Point in accordance with the <i>Secretary of the Interior's Standards</i>	Negligible to minor, site-specific benefits	Same as No Action	Same as No Action
Zoning of the Rockefeller Building and powerhouse as "Preservation/Adaptive Use Subzone" of the "Cultural Zone"	Minor, site-specific benefits to these historic structures	Same as No Action	Same as No Action
Maintenance and preservation of exterior of Rockefeller Building in accordance with the <i>Secretary of the Interior's Standards</i>	Minor to moderate, site-specific benefit	Same as No Action	Same as No Action
Retrofitting of potentially NRHP-eligible structures for universal access in accordance with the <i>Secretary of the Interior's Standards</i>	Negligible to minor, site-specific impacts to cultural resources	Same as No Action	Same as No Action
Acquisition of navy archives and collections by the NPS for use in interpretive and educational visitor programs	Minor, regional benefit to cultural resources	Same as No Action	Same as No Action
Changes in traffic volumes	Minor benefit to cultural landscape	Minor impacts to cultural landscape, particularly Schoodic Loop Road	Minor to moderate impacts to cultural landscape, particularly Schoodic Loop Road
Base building removal	No effect (no building removal proposed)	Negligible to minor	Same as Alternative B
Vegetation restoration	No effect (no restoration proposed)	Negligible or minor benefit to the cultural landscape of the potentially eligible Schoodic Peninsula Historic District	Same as Alternative B

**TABLE 10. SUMMARY OF IMPACTS (SHEET 5 OF 6)**

Activity	Alternative A: No Action	Alternative B: NPS Management	Alternative C: Collaborative Management (preferred)
<b>CULTURAL RESOURCES (continued)</b>			
Increased visitor information related to historic preservation	No effect (no increased information proposed)	Negligible to moderate benefits to cultural resources	Same as Alternative B
Landscaping sympathetic to 1934 design around the Rockefeller Building	No effect (no landscaping proposed)	Minor, site-specific benefit	Same as Alternative B
Rehabilitation and reuse of ineligible base structures	No effect (no rehabilitation and reuse proposed)	Negligible to minor benefits to cultural resources	Same as Alternative B
<b>VISITOR EXPERIENCE</b>			
Determination of acceptable levels of visitation, implementation of management zoning (limiting access)	Minor to moderate adverse impact to visitor experience	Same as No Action	Same as No Action
Removal of fencing around the base (greater access)	Minor benefit	Same as No Action	Same as No Action
Revegetation of social trails and construction of a maintained trail on Little Moose Island	Minor benefits to visitors; minor adverse impacts for those who frequent these social trails	Same as No Action	Same as No Action
Increase in visitor use	Minor to moderate impacts at Schoodic Point and trails around Schoodic Head at midday, minor impacts at Frazer Point	Major impacts for visitors to Schoodic Point at midday; minor impacts at Frazer Point	Major impacts for visitors to Schoodic Point at midday; moderate impacts at Frazer Point
Overnight visitor use	Negligible impacts on views of night sky at the base	Same as No Action	Minor adverse impacts on views of the night sky at the base
Changes in traffic volume	Negligible or minor benefits	Negligible or minor benefits	Moderate to major impacts
Slow-moving construction traffic (building removal and renovation, etc.)	No effect (no building removal proposed)	Minor impacts to Schoodic Loop Road	Negligible to minor impacts to Schoodic Loop Road
Creation of more natural feel of base area	No effect (negligible base modifications proposed)	Minor benefits	Same as Alternative B
Level of human presence in the Schoodic District	Minor benefit on visitor perception of quiet and solitude	Negligible to minor impacts on visitor perception of quiet and solitude	Same as Alternative B
Building removal and renovation	No effect (no building removal proposed)	Moderate to major, short-term impacts from noise and dust (15 buildings removed)	Minor to major, short-term impacts (5–10 buildings removed)

**TABLE 10. SUMMARY OF IMPACTS (SHEET 6 OF 6)**

Activity	Alternative A: No Action	Alternative B: NPS Management	Alternative C: Collaborative Management (preferred)
<b>VISITOR EXPERIENCE (continued)</b>			
Restoration of landscape	No effect (no restoration proposed)	Minor or moderate benefits to visitors (40 acres restored)	Negligible to minor benefit to visitors (16 acres restored)
Rehabilitation of Rockefeller Building	No effect (no rehabilitation proposed)	Minor to moderate localized benefits on visitor experience	Same as Alternative B
Improvements to base parking and circulation	No effect (no improvements)	Minor benefits for visitors	Major benefits
<b>SOCIOECONOMIC ENVIRONMENT</b>			
Increase in visitor use, program participants, and staff	Negligible benefit to socioeconomic environment (1,800 participants/year, 5 staff)	Minor benefit to socioeconomic environment (13,500 participants/year; 30 staff)	Moderate benefit to socioeconomic environment (31,500 participants/year; 60 staff)
Employee and visitor spending in nearby communities	Benefits of unknown magnitude	Same as No Action	Same as No Action
Rental of housing by parks staff	Negligible benefit to the local economy	Negligible to minor benefit to the local economy	Same as Alternative B with slightly increased benefits

\* No impairment of any NPS resource or value would occur in any alternative



## PART FIVE: CONSULTATION AND COORDINATION

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### SUMMARY OF PLANNING

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This plan was prepared through a process of continuous consultation with Acadia National Park and other National Park Service staff, and with a large number of stakeholders including governmental bodies, educational and cultural organizations, businesses, elected officials, and individual members of the public.

Planning began in 1999 when Superintendent Paul Haertel was first informed that Naval Security Group Activity Winter Harbor, was slated to cease operation by July 2002. He sought help from the NPS Northeast Region, and Sarah Peskin, Chief Planner for New England, and John Kelly, Outdoor Recreation Planner, were assigned. Together they and others participated in a series of public forums and quarterly coordinating meetings hosted by three successive commanding officers of NSGA to plan for an orderly transition of management from the U.S. Navy. Because only part of the base would legally revert back to NPS, key stakeholders included the towns of Winter Harbor and Gouldsboro, the Maine congressional delegation, the State of Maine, and a large number of individuals and organizations with responsibilities and concerns about the loss of an important employer and historic presence in this rural area.

Quarterly transition meetings were held from 2000 until 2002 to coordinate matters such as land and property disposition, environmental surveys, sharing of resource data, reuse opportunities, and other issues involving multiple entities. Responsible officials from local, state, and federal agencies, and representatives of the Congressional delegation participated in each of these meetings. Each meeting had a public component allowing interested people to get current status reports, and have their questions addressed. These meetings were well attended and covered by local weekly and daily newspapers. Acadia National Park managers and Schoodic planning team leaders attended regularly and participated in all the public forums.

At these meetings, the planning team explained how the NPS process fit into overall efforts to prepare for the departure of the Navy. The Schoodic planning team prepared a background document titled *Schoodic Point Navy Base Reuse: Site Orientation and Overview* in 2001 with maps, photographs, and other information about the Schoodic District. Also included was a statement of guiding principles and goals on which planning would be based.

Following the U.S. Navy's departure, the Schoodic planning team continued to brief the State of Maine and local communities on the planning process and to seek their input on a formal and informal basis. These consultations included ongoing coordination with the Maine State Planning Office, NPS participation in the Maine Rural Development Council's Schoodic area workshop in March 2001, and a meeting with the Schoodic Area League of Towns (SALT) in February 2002. SALT includes the towns of Franklin, Gouldsboro, Sorrento, Steuben, Sullivan, and Winter Harbor. The Schoodic planning team also met regularly with Schoodic AreaFutures, a nonprofit organization that formed in 1999 to provide a forum for discussion and promote ideas about the ways the local communities can address change on the Schoodic Peninsula.

Since February 2001, the Schoodic planning team has briefed the park's Advisory Commission on the status of the general management plan at nine of its regular meetings. The 16-member Advisory Commission is the park's Congressionally authorized citizen advisory group representing the State of Maine, local towns, and the public at large. All Advisory Commission meetings are open to the public. In addition to completing consultations on the *Draft General Management Plan Amendment/Environmental Impact Statement (DGMPA/EIS)*, the Schoodic planning team has worked continuously and cooperatively with the local communities on the development of the Schoodic National Scenic Byway, expansion of the Island Explorer shuttle bus to Schoodic, and preparation of a comprehensive plan for the



Town of Winter Harbor. These efforts relate directly to the use and development of the Schoodic District.

The team conducted two formal public meetings at Sullivan High School in 2000 and 2002 to provide information about the planning process and to seek public comment. A mailing list was developed and attendees were invited to mail back suggestions and remain on the list for future updates. A newsletter was published in 2001 with background information and preliminary concepts for further discussion and analysis. In 2001, John Kelly moved to Acadia National Park as the Park Planner to provide local coordination and support for the planning process. Throughout the course of the project, key documents were posted on the Acadia National Park website where they remain for reference. These publications may be found at: [www.nps.gov/acad/schoodic/home.htm](http://www.nps.gov/acad/schoodic/home.htm)

The Schoodic planning team is sensitive to tribal interest in the proper stewardship of resources on the peninsula. The five federally recognized tribes in Maine have been and will continue to be consulted in conjunction with the preparation of the *DGMPA/EIS* for the Schoodic District. Consultations with the Maine tribes were initiated at a meeting in February 2002. The tribal leaders and park staff agreed that there was strong potential for a partnership at the proposed Schoodic Education and Research Center. Tribal members expressed interest in utilizing the facilities for tribal meetings or activities that educate the public on Wabanaki culture. A second meeting at Schoodic took place with tribal leaders in July 2002. The leaders had an opportunity to tour the base and visit a number of the buildings and facilities. Again, there was strong interest on the part of the leaders present to think of ways that the tribes could utilize the facilities as a gathering place and to hold programs to teach the public about the Wabanaki people. The most recent tribal meeting was held in December 2002, and was hosted by the Aroostook Band of Micmacs and the Houlton Band of Maliseet Indians. Participants were brought up to date on the ongoing planning efforts for the Schoodic District and their input was sought.

Consultation with the Maine State Historic Preservation Officer (SHPO) has been ongoing during research for and preparation of National Register nominations for the Schoodic Peninsula District and the Rockefeller Building. On March 28, 2002 the *DGMPA/EIS* was discussed as part of an overall review meeting. Further consultation will take place during review of the *DGMPA/EIS*.

An open house was held at Schoodic in October 2002 so that interested parties could tour the former navy base site that had not been open to the public while an active military installation. Throughout the planning process, articles have appeared in publications and on websites of the Friends of Acadia, and National Parks Conservation Association. These two large membership organizations have helped NPS stay in touch with members of the public beyond those who live year round in the immediate vicinity of Schoodic. Local press coverage and the Friends of Schoodic website have kept neighbors and others informed.

A public meeting will be held while the *DGMPA/EIS* is on review and the draft will be distributed and posted on the website. Comments will be addressed as decisions are made and the amendment is made final.

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## LIST OF DRAFT GENERAL MANAGEMENT PLAN AMENDMENT RECIPIENTS

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### Federal Agencies

Acadia National Park Advisory Commission  
Advisory Council on Historic Preservation  
Department of Agriculture, Natural Resources Conservation Service  
Department of Commerce, National Oceanic and Atmospheric Administration  
Department of Defense, Office of Economic Adjustment  
Department of the Interior, U.S. Fish and Wildlife Service:  
    Northeast Region  
    Petit Manan National Wildlife Refuge  
Department of Homeland Security, U.S. Coast Guard, First District  
Department of the Navy:  
    Naval Facilities Engineering Command, Northern Division  
    Naval Satellite Operations Center, Detachment Alpha  
    Naval Security Group Command  
Department of Transportation:  
    Federal Highway Administration, Maine Division  
    Volpe National Transportation Systems Center  
Environmental Protection Agency, Region 1  
General Services Administration, New England Region

### Indian Tribes

Aroostook Band of Micmacs  
Houlton Band of Maliseet Indians  
Passamaquoddy Tribe:  
    Indian Township Reservation  
    Pleasant Point Reservation  
Penobscot Indian Nation

### State Agencies

Department of Conservation  
Department of Economic and Community Development  
Department of Education  
Department of Environmental Protection  
Department of Inland Fisheries and Wildlife  
Department of Labor  
Department of Marine Resources  
Department of Transportation, Office of Passenger Transportation  
Maine Historic Preservation Commission  
Maine Rural Development Council  
Office of Tourism  
State Planning Office  
University of Maine:  
    College of Education  
    College of Natural Sciences, Forestry, and Agriculture  
    Cooperative Extension

Lobster Institute  
Maine Sea Grant  
School of Marine Sciences (Darling Marine Center)  
Senator George J. Mitchell Center for Environmental and Watershed Research

### Local Agencies

School Union 92  
School Union 93  
School Union 96  
School Union 98  
Town of Bar Harbor  
Town of Cranberry Isles  
Town of Franklin  
Town of Frenchboro  
Town of Gouldsboro  
Town of Isle au Haut  
Town of Mount Desert  
Town of Sorrento  
Town of Southwest Harbor  
Town of Steuben  
Town of Sullivan  
Town of Swans Island  
Town of Tremont  
Town of Trenton  
Town of Winter Harbor

### Elected Officials

U.S. Senator Susan Collins  
U.S. Senator Olympia J. Snowe  
U.S. Representative Tom Allen (1st District)  
U.S. Representative Michael H. Michaud (2nd District)  
Governor John E. Baldacci  
State Senator Dennis Damon (Senate District 5)  
State Senator Christine R. Savage (Senate District 12)  
State Senator Kevin L. Shorey (Senate District 4)  
State Representative Leonard Earl Bierman (House District 132)  
State Representative Edward R. Dugay (House District 131)  
State Representative Theodore Koffman (House District 130)  
State Representative Hannah Pingree (House District 129)  
Hancock County Commissioner Fay A. Lawson (District 3)

### Organizations

Abbe Museum  
Acadia Corporation  
Appalachian Mountain Club  
Bigelow Laboratory for Ocean Sciences  
Carriages in the Park, Inc.  
Coastal Acadia Development Corporation  
College of the Atlantic  
Conservation Education Foundation of Maine  
Down East Resource Conservation and Development Council  
Downeast and Acadia Regional Tourism

Downeast Transportation Inc.  
 Eastern Maine Development Corporation  
 Eastern National  
 Frenchmen Bay Conservancy  
 Friends of Acadia  
 Friends of Schoodic  
 Gouldsboro Historical Society  
 Hancock County Planning Commission  
 Humboldt Field Research Institute  
 Maine Association of Sea Kayak Guides and Instructors  
 Maine Audubon Society  
 Maine Coast Heritage Trust  
 Maine Community Development Association  
 Maine Community Foundation  
 Maine Environmental Education Association  
 Maine Environmental Research Institute  
 Maine Science and Technology Foundation  
 Maine Sierra Club  
 Maine Tourism Association  
 Marine Environmental Research Institute  
 Mount Desert Island Biological Laboratory  
 National Park Tours  
 National Parks Conservation Association  
 Natural Resources Council of Maine  
 Oli's Trolley  
 Schoodic Area Futures  
 Schoodic Arts for All  
 Schoodic Healthy Communities  
 Schoodic Peninsula Chamber of Commerce  
 Schoodic Scenic Byway Committee  
 The Island Institute  
 The Jackson Laboratory  
 The Nature Conservancy  
 U.S. Naval Cryptologic Veterans Association  
 Winter Harbor Historical Society

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## LIST OF PREPARERS

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### National Park Service Planning Team

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 Captain  
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 Clarissa Rowe, Alison Richardson, Lisa Roth; Brown,

Richardson and Rowe, Landscape Architects (Design  
 Guidelines)  
 Lauren Meier, Eliot Foulds, David Uschold, Olmsted Center  
 for Landscape Preservation (Cultural Landscape  
 Reports)  
 Michael G. Dyer, Scott A. Peterson, Tom Crikelair,  
 U.S. Department of Transportation, Research and  
 Special Programs Administration, John A. Volpe  
 National Transportation Systems Center (Alternative  
 Transportation Assessment)  
 Steve Kahl, Heritage Partners (Partnership Development)  
 Tish Tanski, Heritage Partners (Business Plan/Program  
 Development)  
 Drew Leff, GLC Development/Heritage Partners  
 (Development Feasibility)  
 Catherine Barner, Heritage Partners  
 Michelle Bierman, Heritage Partners (Administrative Systems  
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 Glen Mittelhauser (Natural Resources)  
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 Naomi Porat, Porat Consulting (Market and Economic  
 Assessment)  
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### Acadia National Park Advisors

Karen Anderson, GIS Specialist  
 Mike Blaney, Land Resource Specialist  
 Len Bobinchock, Deputy Superintendent  
 Robert Breen, Air and Water Quality Specialist  
 David Buccello, Chief Ranger  
 Phil Church, Schoodic Maintenance Foreman  
 Bruce Connery, Biologist, Wildlife Resources  
 Linda Gregory, Botanist  
 Paul Haertel, Former Superintendent  
 Judith Hazen Connery, Natural Resource Specialist  
 Mike Healy, Administrative Officer  
 Charles Jacobi, Recreation Specialist  
 Douglas Jones, Fire Management Officer  
 David Manski, Chief of Resource Management  
 Boyd McFarland, Information Technology Specialist  
 Ed Pontbriand, Schoodic District Ranger  
 Sheridan Steele, Superintendent  
 Lee Terzis, Cultural Resource Program Manager  
 James Vekasi, Chief of Maintenance  
 Deb Wade, Chief of Interpretation  
 Bill Weidner, Schoodic Ranger  
 Stuart West, Branch Chief - Remote Areas

### National Park Service Advisors

Marie Rust, Director, Northeast Region  
 Robert W. McIntosh, Associate Regional Director, Planning  
 and Partnerships  
 David Hollenberg, Associate Regional Director, Design,  
 Construction, and Facility Management  
 Peter Steele, Project Manager, Northeast Region  
 Paul Weinbaum, Historian, Northeast Region

## GLOSSARY

**Accessibility** - The provision of NPS programs, facilities, and services in ways that include individuals with disabilities, or make available to those individuals the same benefits available to persons without disabilities.

**Archeological Resource** - Any material remains or physical evidence of past human life or activities that are of archeological interest, including the record of the effects of human activities on the environment. An archeological resource is capable of revealing scientific or humanistic information through archeological research.

**Carrying Capacity** - The type and level of visitor use that can be accommodated while sustaining the desired resource and visitor experience conditions in a park. Carrying capacities for national park units are established using the Visitor Experience and Resource Protection framework, which is a planning process that determines the desired resource and visitor experience conditions based on measurements of quantifiable indicators and standards.

**Conservation Easement** - A legal agreement between a landowner and another party that protects the conservation value of a parcel by limiting uses and changes that the landowner may make to it. The holder of the conservation easement may monitor the property to enforce the restrictions.

**Cultural Landscape** - A geographic area, including both cultural and natural resources and the wildlife or domestic animals therein, associated with a historic event, activity, or person, or exhibiting other cultural or aesthetic values. There are four non-mutually exclusive types of cultural landscapes: historic sites, historic designed landscapes, historic vernacular landscapes, and ethnographic landscapes.

**Cultural Resource** - An aspect of a cultural system that is valued by or significantly representative of a culture, or that contains significant information about a culture. A cultural resource may be a tangible entity or a cultural practice. Tangible cultural resources are categorized as districts, sites, buildings, structures, and objects for the National Register of Historic Places, and as archeological resources, cultural landscapes, structures, museum objects, and ethnographic resources for NPS management purposes.

**Defensible Space** - The space needed for firefighters to adequately defend structures from oncoming wildland fires, or to stop a structural fire before it ignites wildland vegetation. Defensible space describes the desired result of planning, siting, and constructing developed facilities in a way that minimizes their vulnerability to wildfire threats and maximizes their protection against wildfire hazards.

**Downeast Maine** - A region in Maine that consists of the coastal areas of Hancock and Washington counties. The name was coined in reference to sailing in an easterly direction, downwind from Boston.

**Environmental Impact Statement** - A detailed NEPA analysis document that is prepared when proposed actions or alternatives have the potential for significant impact on the human environment.

**Ethnographic Resources** - Objects and places, including sites, structures, landscapes, and natural resources, with traditional cultural meaning and value to associated peoples. Research and consultation with associated people identifies and explains the places and objects they find culturally meaningful.

**Geologic Resources** - Features produced from the physical history of the Earth, or processes such as exfoliation, erosion and sedimentation, glaciation, karst or shoreline processes, seismic, and volcanic activities.

**General Management Plan** - A plan that clearly defines direction for resource protection, visitor use, and development in a park, and serves as the basic foundation for decision-making over a 10-15-year time frame.

**Historic Property** - A district, site, building, structure, or object significant in the history of American archeology, architecture, culture, engineering, or politics at the national, state, or local level.

**Impact** - The likely effects of an action or proposed action upon specific natural, cultural, or socioeconomic resources. Impacts may be direct, indirect, cumulative, beneficial, or adverse. Severe impacts that harm the integrity of park resources or values are known as "impairments."

**Impairment** - An impact so severe that, in the professional judgment of a responsible NPS manager, it would harm the integrity of park resources or values and violate the 1916 NPS Organic Act.

**Leave No Trace** - Principles and practices that emphasize the ethic of leaving a place free and clear of human presence. Applied to all forms of recreation management within wilderness or other sensitive resource areas.

**Lightscape (natural)** - The state of natural resources and values as they exist in the absence of human-caused light.

**Management Prescriptions** - A planning term referring to statements about desired resource conditions and visitor experiences, along with appropriate kinds and levels of management, use, and development for each park area.

**Management Zones** - These zones identify how geographic areas in the park will be managed to achieve a combination of desired conditions. Each zone prescribes a unique combination of physical, biological, social, and managerial conditions along with specific management strategies that should be taken to achieve the desired resource conditions and visitor experiences for a given zone.

**National Register of Historic Places** - The nation's official list of properties (districts, sites, buildings, structures, and objects) having national, state, or local historic significance and deemed worthy of preservation. The National Register was established under the National Historic Preservation Act of 1966.

**National Environmental Policy Act Process** - The objective analysis of a proposed action to determine the degree of its environmental impact on the natural and human environment; alternatives and mitigation that reduce that impact; and the full and candid presentation of the analysis to, and involvement of, the interested and affected public. Required of all federal agencies by the National Environmental Policy Act of 1969.

**Recreation Visit** - The entry of a person into the park for recreational purposes. Recreational visits do not include commuter traffic, people traveling through the park to inholdings, and tradespeople conducting business in the park. NPS employees and their families, concessioner and cooperating association employees, contractors, and those conducting activities associated with cooperative agreements are not counted as visits.

**Secretary of the Interior's Standards for the Treatment of Historic Properties (The)** - A set of guidelines for preserving, rehabilitating, restoring, and reconstructing historically significant districts, sites, buildings, structures, and objects. Preservation focuses on the maintenance and repair of existing historic materials and retention of a property's form as it has evolved over time. Rehabilitation acknowledges the need to alter or add to a historic property to meet continuing or changing uses while retaining the property's historic character as it has evolved over time. Restoration depicts a property at a particular period of time in its history, while removing evidence of other periods. Reconstruction re-creates vanished or non-surviving portions of a property for interpretive purposes.

**Social Trail** - A trail that is not officially designated or maintained by NPS and develops by continuous human use rather than by purposeful design and construction.

**Soundscape (natural)** - The aggregate of all the natural, non-human-caused sounds that occur in parks, together with the physical capacity for transmitting natural sounds.

**Sustainable Practices/Principles** - Those choices, decisions, actions, and ethics that will best achieve ecological/biological integrity; protect qualities and functions of air, water, soil, and other aspects of the natural environment. Sustainable practices allow for use and enjoyment by the current generation while ensuring that future generations will have the same opportunities.

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# APPENDICES

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## APPENDIX A: PARKWIDE INTERPRETIVE THEMES

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Acadia National Park uses the following five themes to guide its interpretive approach for the entire park, including Schoodic. Recent history, including the Navy's use of the peninsula, is included in the third theme, which addresses human activities. These themes will guide program planners as they develop materials for Schoodic.

- **National parks offer opportunities to fulfill emotional and spiritual needs for renewal and invoke attitudes of reverence and stewardship.**

Because of the deep affection that they held for Acadia, private citizens took the actions necessary to preserve these beautiful landscapes, places where it is still possible to observe and be renewed by nature. As a national park, Acadia has continued the tradition of providing spiritual respite and encouraging responsible stewardship.

- **The flora and fauna of Acadia National Park and surrounding waters comprise a rich mix of temperate, neotropical, and boreal species significant in their biodiversity.**

At Acadia, land and sea meet and the Northern and Temperate Zones overlap resulting in an abundance of life and significant biodiversity. Bordering the Gulf of Maine and the Atlantic Ocean and protecting habitats with temperate, neotropical, and boreal species, Acadia is zoologically and botanically rich.

- **The cultural resources of Acadia National Park document human activities that span five thousand years.**

Acadia's human history begins with centuries of seasonal use by native peoples followed by a period of European contact, exploration, and settlement initiated by the French. Decades of commercial use by lumbermen, shipbuilders, and fishermen overlapped and even fostered increased pressure for conservation and the evolution of tourism.

- **Acadia National Park provides many opportunities to increase our understanding of natural systems and human impact on them.**

Acadia is a living scientific laboratory, offering significant opportunities for education and continued, multidisciplinary ecosystem research.

- **The natural landforms of Acadia National Park illustrate the dynamics of many geologic processes.**

Acadia is a geologic primer on the effects of intense heat and pressure followed by the irresistible erosive power of glaciers and the continued, persistent impact of powerful waves crashing ashore.

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## APPENDIX B: COST ESTIMATES

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### **ALTERNATIVE A: NO ACTION**

#### **ANNUAL NPS OPERATING COSTS**

##### **Personnel:**

Management/Administration	\$22,000
Visitor Protection	226,000
Resource Management	0
Research Learning Center	225,000
Maintenance	323,000
<i>Subtotal</i>	<i>\$796,000</i>

<b>Utilities</b>	99,000
<b>Contract Services</b>	81,000
<b>Supplies and Materials</b>	67,000
<b>Vehicles</b>	14,000

<b>TOTAL ANNUAL NPS OPERATING COSTS</b>	<b>\$1,057,000</b>
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## **ALTERNATIVE B: NPS MANAGEMENT**

### **ANNUAL NPS OPERATING COSTS**

#### **Personnel:**

Management/Administration	\$254,000
Visitor Protection	335,000
Resource Management	122,000
Research Learning Center	225,000
Maintenance	621,000
<i>Subtotal</i>	<i>\$1,557,000</i>

<b>Utilities</b>	148,000
<b>Contract Services</b>	144,000
<b>Supplies and Materials</b>	135,000
<b>Vehicles</b>	30,000

<b>TOTAL ANNUAL NPS OPERATING COSTS</b>	<b>\$2,014,000</b>
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#### **CONSTRUCTION\***

<b>Predesign Studies</b>	\$113,000
<b>Site Demolition</b>	304,000
<b>Building Demolition</b>	552,000
<b>Building Rehabilitation</b>	3,810,000
<b>Site Work</b>	2,073,000
<b>Landscaping</b>	249,000
<i>Subtotal</i>	<i>\$7,101,000</i>

Planning, Design, Construction Supervision @35% of Subtotal	2,445,000
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<b>TOTAL CONSTRUCTION</b>	<b>\$9,547,000</b>
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\*Cost estimates are preliminary Class C based on year 2004 dollars.

## **ALTERNATIVE C: COLLABORATIVE MANAGEMENT (PREFERRED)**

### **ANNUAL NPS OPERATING COSTS**

#### **Personnel:**

Management/Administration	\$352,000
Visitor Protection	499,000
Resource Management	122,000
Research Learning Center	225,000
Maintenance	530,000
<i>Subtotal</i>	<i>\$1,728,000</i>

<b>Utilities</b>	88,000
<b>Contract Services</b>	328,000
<b>Supplies and Materials</b>	180,000
<b>Vehicles</b>	40,000

**TOTAL ANNUAL NPS OPERATING COSTS                      \$2,364,000**

Note: For Alternative C, it is assumed the nonprofit organization would provide an additional \$812,000 for maintenance and utilities.

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### **CONSTRUCTION\***

<b>Predesign Studies</b>	\$113,000
<b>Site Demolition</b>	361,000
<b>Building Demolition</b>	218,000
<b>Building Rehabilitation</b>	5,545,000
<b>Site Work</b>	2,090,000
<b>Landscaping</b>	249,000
<i>Subtotal</i>	<i>\$8,576,000</i>

Planning, Design, Construction Supervision  
@ 35% of Subtotal                      2,962,000

**TOTAL CONSTRUCTION                                      \$11,538,000**

\*Cost estimates are preliminary Class C based on year 2004 dollars.

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## APPENDIX C: ALTERNATE TRANSPORTATION STUDY SUMMARY

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### Introduction

In 2001, the John A. Volpe National Transportation Systems Center of the U.S. Department of Transportation prepared *Acadia National Park: Assessment of Alternate Transportation for Schoodic Peninsula*. The report identifies and assesses four alternatives for the Schoodic District by examining three transportation modes: buses, ferries, and bicycles. NPS (NPS) would implement an alternative transportation system in cooperation with the State of Maine, local communities, and private operators.

A travel demand model was developed from several data sources and fieldwork by the project team to identify patterns of travel between Mount Desert Island and the Schoodic District. The data, which were drawn from Hancock and Washington counties, include demographic data (population and employment); NPS research on park visitation; land use and growth trends; existing transportation services; trip-to-work and other transportation needs; and anticipated needs of recreational visitors to Schoodic. Data were based on the 2000 census and extrapolated to project transportation needs to 2015.

The following transportation alternatives proposed in the study have no correlation to the *Draft General Management Plan Amendment* alternatives:

Alternative 1: This is a "no action" alternative. Conditions would remain as they were at the time of the study.

Alternative 2: This alternative would provide a year-round commuter bus service linking Bar Harbor and the Schoodic Peninsula, a park-and-ride facility in Winter Harbor, and a local bus route taking park-and-ride users to nearby villages and the park at Schoodic. This alternative does not include ferry service.

Alternative 3: This alternative is the preferred alternative, as selected by the Volpe Center consultants. This alternative would provide ferry service and bus service from May to October for commuters and recreational users between Bar Harbor and the Schoodic Peninsula. A park-and-ride facility would be located in Winter

Harbor, and there would be a bus route to take park-and-ride users to nearby villages and the park at Schoodic. The bus would also serve as a backup for ferry cancellations and winter service.

Alternative 4: This alternative would provide year-round ferry service between Bar Harbor and the Schoodic Peninsula for recreational and commuter users, a park-and-ride facility in Winter Harbor, and a bus route to take park-and-ride users to nearby villages and the park at Schoodic. There would be backup bus service for ferry cancellations due to weather and operational problems.

### Bus Service

Bus service concepts were developed for direct transportation between Bar Harbor and Schoodic District, and for local service. Two potential levels of bus service include the following:

Level One bus service would use two buses for limited commuter links between Bar Harbor and the Schoodic Peninsula. One bus would accommodate 35–40 passengers and provide four daily round trips from its base in Winter Harbor. The second bus would be slightly smaller, accommodating about 28 passengers. This bus would be based in Winter Harbor at night and would remain at The Jackson Laboratory during the day, offering one round trip between Winter Harbor and Bar Harbor daily. Level-one service would involve approximately 15.5 vehicle service hours per day and cost approximately \$97,000 per year.

Level Two bus service is more intensive and would use two regularly scheduled buses, one based in Winter Harbor and the other in Bar Harbor. The bus based in Winter Harbor would offer two daily round trips, one in the morning and one in the afternoon. With this bus, there would be the option for evening service. The bus based in Bar Harbor would offer two morning round trips with one midday round trip and one late afternoon round trip. Both buses would accommodate 35–40 passengers and involve approximately 20 vehicle service hours per day. The cost of this "bus-only" service

would be approximately \$125,000 per year for regular weekly service. Proposed year-round operation costs are estimated at \$69,000 per year. If weekends are included in this estimate, there is an additional cost of \$9,100 per year.

The Jackson Laboratory has expressed interest in year-round service. Linking service between The Jackson Laboratory and Bar Harbor residential areas with ferry service may be possible as a less expensive option than operating separate shuttles. During summer months, a second bus may be needed. The estimated cost of shuttle service in Bar Harbor is \$50,000 with an additional cost of \$5,600 for another bus in summer months.

The report also suggests that a van could shuttle NPS staff and SERC users between downtown Bar Harbor and park headquarters. This expanded service is estimated to cost \$19,000 per year.

### **Ferry Service**

Because round-trip driving distance between Bar Harbor and Winter Harbor is approximately 90 miles, ferry service across Frenchman Bay may be more efficient transportation for commuters. The proposed ferry services would draw on three target markets: commuters in Downeast Maine, users of SERC, and tourists and recreational users. Residents and park visitors to Mount Desert Island would provide virtually all demand for the proposed ferry service. According to a NPS visitor survey, 10% of visitors to Acadia National Park visited the Schoodic District. Of the residents of the Schoodic Peninsula, 5% make annual recreational trips to Mount Desert Island.

The seasonal service that extends from May to October would run during weekday morning and evening peak hours seven days a week. If year-round service were selected, ferries would run for 50 weeks with two weeks for maintenance; schedules would be similar to the seasonal ferry service. Demand calculations are based on voyage time, headway times, and distance that ferry users must travel. The projected costs of a ferry round trip are \$6 for commuters, with recreational fares of \$20 for

adults and \$12 for children. The latter fares could decrease demand because of the high price a family would pay. For example, a family of five with bikes might opt to drive to Schoodic instead of paying \$76 plus the likely additional cost of transporting bikes. The report specifies that over 90% of projected revenue would come from recreational use; therefore, if the demand decreases due to high cost, revenue would decrease.

Vessel and Terminal Considerations: The Volpe Center inspected possible terminal sites in Bar Harbor and Winter Harbor. When looking at candidate terminals for future ferry services, the Volpe Center considered the following criteria: navigational approach, depth and bottom characteristics, infrastructure, parking, and proximity to target markets.

Of the docks considered in Winter Harbor, the site that best meets the criteria is a private marina and dock on Sargent Street in Winter Harbor. The marina dock would be the easiest to navigate into because it has a better dock infrastructure, and there is an ease of access and parking. Other docks considered had multiple and significant problems.

The Volpe Center also investigated types of potential ferry vessels. In addition to evaluating the feasibility of a catamaran, the project team evaluated a single-hull boat with a minimum speed of 18 knots (a speed that could make a round trip in 80 minutes), a length of less than 65 feet, and a passenger capacity of 50–100. Using a monohull vessel is preferred because it is more cost-effective. A monohull vessel would have the capacity to carry more passengers, while only cutting the travel time by a few minutes.

Based on other ferry services, the Volpe Center calculated the cost of a Bar Harbor to Winter Harbor ferry service. Costs included vessel debt repayment and direct and indirect operating cost. Direct operating costs would include crew, fuel and lubricant, hull insurance, and vessel maintenance. Indirect operations costs would include terminal-related costs, protection and indemnity insurance, docking fees, marketing and advertising, and general administration.



**Potential Routes and Schedule:** The ferry service would cross Frenchman Bay, which has challenging winds in varying directions. The proposed route between Bar Harbor and Winter Harbor is about 7.4 nautical miles. The ferry would provide opportunities for commuters between Bar Harbor and Winter Harbor to have shorter traveling time to and from work. During commute hours, the ferry schedule would be determined mostly by The Jackson Laboratory shift changes since lab employees are expected to make up the majority of the commuters. Ferry and bus schedules were designed around a 25-minute trip time between Bar Harbor and Winter Harbor, and a minimum layover of 10 minutes between ferry runs, resulting in a total of about 80 minutes between round-trip ferry departures. The projected ferry schedule includes nine round trips, which would include three round trips between 5:15 a.m. and 9:00 a.m., two round trips between 10:00 a.m. and 12:40 p.m., and three roundtrips between 1:30 p.m. and 6:40 p.m. Seasonal service is preferred over year-round service because it will maximize recreational revenues and minimize operational costs, such as labor and fuel. To be successful, the ferry service would need well-designed transit links at both ends to serve commuters and recreational passengers.

**Ferry Service with Bicycles:** Based on surveys conducted by the University of Vermont, 17 to 26% of park visitors bike-ride in the park. The success of the ferry service would depend in part on other components of the transportation system. Factors that should be considered are bicycle lane improvements in and around Schoodic, availability of bike rentals on both sides of the ferry trip, availability of free or low-cost bicycle transport on the ferry, ample parking at ferry sites, and local bus service links from the Bar Harbor and Winter Harbor docks. The ferry service should be intermodal, allowing people to get and use bicycles at either end of the ferry trip. The ferry terminals should be biker friendly. Bike racks should be provided for commuters, and bicycle route maps and signage should be made readily available.

### **Road Conditions for Bicycles**

Because of the one-way Schoodic Loop Road in the park, visitors must bike a 12-mile loop con-

sisting of State Route 186, secondary roads, and roads within the park. Moore Road is an entry road leading into the park at Frazer Point, and Wonsqueak Road is an exit road joining State Route 186 outside the park. All roads outside the park are one-lane each way and have an average speed limit of 35 mph with narrow gravel shoulders. The daily traffic on these roads averages about 800 to 1,000 cars. The road within the park is one-way but splits into a two-way road leading 0.5 mile to Schoodic Point. There are no provisions on any roads to provide safe, designated bicycle lanes. There are no shoulders on the Schoodic Point Road, and other roads inside the park have dirt or gravel shoulders. Narrow shoulders on all roads, including the state roads, are extremely unsafe. Furthermore, none of the roads has any signs or lane striping for bicyclists.

The preferred alternative according to the Volpe Center consultants to make the Schoodic District more bicycle friendly is to retain the one-way loop configuration from Frazer Point to the park exit at Birch Harbor, reassigning the existing lanes by using the right lane as the bicycle lane with an extended shoulder and the left lane for vehicular traffic. Although this could lead to traffic congestion during the peak visitor season, proposed ferry and bus services would mitigate this problem by reducing automobile traffic.

### **Road Impacts and Enhancements**

Over the next 15 years, traffic on the Schoodic Peninsula is expected to increase by about 1% a year on the State Route 186. Under the preferred transportation alternative (#3), the traffic analysis shows the following:

- Traffic on State Route 186 would increase, but the increase would be less than if no action were taken.
- The number of vehicles on Moore and Wonsqueak roads, both inside and outside the park, would decrease under all scenarios except the high-use scenario in 2015.
- Vehicle capacity on roads inside the park would increase if one of the lanes on the one-way loop were made into a bike lane.

- Parking shortages, particularly in summer, would occur at Schoodic Point, which is used by 90% of visitors.

Recommended enhancements to improve travel and reduce traffic on these roads include the following:

- State Route 186 should be striped, maintained, and expanded to accommodate bikes and turning.
- Moore and Wonsqueak roads outside the park need to have paved shoulders and, in some places, be widened.

- Roads inside the park should continue to be one-way, and one lane should be made into a bicycle lane. The park should consider widening the road toward the land side, minimize the removal of coping stones, restrict parking to designated areas, and use traffic counters at entry and exit points.

- Schoodic Point Road should be widened, striped, and marked to show that bicyclists and pedestrians have the right of way.

Although traffic on roads in the Schoodic District would steadily increase over the next 15 years, the increase could be mitigated by commuters and visitors using the ferry and bus service. These new services could be concentrated at times of peak demand and at chokepoints such as parking lots.

## APPENDIX D: NAVY BASE BUILDING REUSE TABLES

Table 1. Navy Base Building Reuse under Alternative A				
Building Name	Building No.	Total Space (sq. ft.)	Proposed Reuse	Space Reused (sq. ft.)
<b>Housing:</b>				
Barracks, Galley	84, 105	41,901	Secure	0
Bachelor Officers Quarters, Garage	192, 209	3,259	Housing	3,259
Schoodic Shores Housing	184-191	38,344	Housing (187-189), Collection Storage (185), Secure (184, 186, 190, 191)	19,172
Cabins	220-222	4,927	Housing	4,927
<b>Sub-Total</b>		<b>88,431</b>		<b>27,358</b>
<b>Education:</b>				
Chapel	3	4,784	Education Program Space	4,784
Commissary	39	7,475	Secure	0
Schooner Club	143	6,545	Meeting Rooms	6,545
<b>Sub-Total</b>		<b>18,804</b>		<b>11,329</b>
<b>Research:</b>				
Medical Clinic	148	7,850	Secure	0
Bowling Alley	162	3,808	Secure	0
Child Development Center	164	2,790	Housing	2,790
Gas Station	165	420	Air Monitoring Station	420
<b>Sub-Total</b>		<b>14,868</b>		<b>3,210</b>
<b>Administration:</b>				
Rockefeller	1	20,612	Secure	0
Administration	10	14,200	Secure	0
<b>Sub-Total</b>		<b>34,812</b>		<b>0</b>
<b>Recreation:</b>				
Gymnasium	138	16,291	Secure	0
North Field Toilet	152	192	Secure	0
<b>Sub-Total</b>		<b>16,483</b>		<b>0</b>
<b>Operations:</b>				
Powerhouse	2	1,175	Utility	1,175
Gate House	9	433	Visitor Contact	433
Generator House	45	596	Utility	596
Transportation/Firehouse	137	3,575	Secure	0
Wastewater Treatment Plant	183	3,764	Utility	3,764
Warehouse	205	4,000	Storage	4,000
Public Works	216	11,860	NPS Administrative Offices, Maintenance Shops	11,860
Grounds Equipment Storage	219	672	Secure	0
Salt/Sand Storage	225	5,000	Maintenance	5,000
Potable Water Treatment Plant	228	1,064	Utility	1,064
<b>Sub-Total</b>		<b>32,139</b>		<b>27,892</b>
<b>No Reuse:</b>				
Auto Hobby	8	2,628	Secure	0
Seabee Hut	46	178	Secure	0
Public Toilets	140	144	Secure	0
Public Works Storage	155	240	Secure	0
Butler Hut	172	1,200	Secure	0
Toilet/Shower	208	144	Secure	0
Car Wash	213	544	Secure	0
Storage	223	374	Secure	0
Octagon Building	224	543	Secure	0
Grounds Maintenance Storage	232	768	Secure	0
<b>Sub-Total</b>		<b>6,763</b>		<b>0</b>
<b>Total</b>		<b>212,300</b>		<b>69,789</b>

Table 2. Navy Base Building Reuse under Alternative B				
Building Name	Building No.	Total Space (sq. ft.)	Proposed Reuse	Space Reused (sq. ft.)
<b>Housing:</b>				
Barracks, Galley	84, 105	41,901	Housing, Food Service	41,901
Bachelor Officers Quarters, Garage	192, 209	3,259	Remove	0
Schoodic Shores Housing	184-191	38,344	Housing (186-189), Remove (184, 185, 190, 191)	19,172
Cabins	220-222	4,927	Housing	4,927
<b>Sub-Total</b>		<b>88,431</b>		<b>66,000</b>
<b>Education:</b>				
Chapel	3	4,784	Education Program Space	4,784
Commissary	39	7,475	Meeting Rooms	7,475
Schooner Club	143	6,545	Meeting Rooms	6,545
<b>Sub-Total</b>		<b>18,804</b>		<b>18,804</b>
<b>Research:</b>				
Medical Clinic	148	7,850	Research Program Space	7,850
Bowling Alley	162	3,808	Remove	0
Child Development Center	164	2,790	Program Space	0
Gas Station	165	420	Air Monitoring Station	420
<b>Sub-Total</b>		<b>14,868</b>		<b>8,270</b>
<b>Administration:</b>				
Rockefeller	1	20,612	Visitor Reception, Exhibits, Offices, Meeting Room	20,612
Administration	10	14,200	Remove	0
<b>Sub-Total</b>		<b>34,812</b>		<b>20,612</b>
<b>Recreation:</b>				
Gymnasium	138	16,291	Remove	0
North Field Toilet	152	192	Public Rest Rooms	192
<b>Sub-Total</b>		<b>16,483</b>		<b>192</b>
<b>Operations:</b>				
Powerhouse	2	1,175	Utility	1,175
Gate House	9	433	Visitor Contact	433
Generator House	45	596	Utility	596
Transportation/Firehouse	137	3,575	Maintenance, Fire Cache	3,575
Wastewater Treatment Plant	183	3,764	Utility	3,764
Warehouse	205	4,000	Storage (relocate)	4,000
Public Works	216	11,860	NPS Administrative Offices, Maintenance Shops	11,860
Grounds Equipment Storage	219	672	Fire Cache	672
Salt/Sand Storage	225	5,000	Maintenance	5,000
Potable Water Treatment Plant	228	1,064	Utility	1,064
<b>Sub-Total</b>		<b>32,139</b>		<b>32,139</b>
<b>No Reuse:</b>				
Auto Hobby	8	2,628	Remove	0
Seabee Hut	46	178	Remove	0
Public Toilets	140	144	Remove	0
Public Works Storage	155	240	Remove	0
Butler Hut	172	1,200	Remove	0
Toilet/Shower	208	144	Remove	0
Car Wash	213	544	Remove	0
Storage	223	374	Remove	0
Octagon Building	224	543	Remove	0
Grounds Maintenance Storage	232	768	Remove	0
<b>Sub-Total</b>		<b>6,763</b>		<b>0</b>
<b>Total</b>		<b>212,300</b>		<b>146,017</b>

**Table 3. Navy Base Building Reuse under Alternative C**

Building Name	Building No.	Total Space (sq. ft.)	Proposed Reuse	Space Reused (sq. ft.)
<b>Housing:</b>				
Barracks, Galley	84, 105	41,901	Housing, Food Service	41,901
Bachelor Officers Quarters, Garage	192, 209	3,259	Remove	0
Schoodic Shores Housing	184-191	38,344	Housing (184-191)	38,344
Cabins	220-222	4,927	Housing	4,927
<b>Sub-Total</b>		<b>88,431</b>		<b>85,172</b>
<b>Education:</b>				
Chapel	3	4,784	Education Program Space	4,784
Commissary	39	7,475	Meeting Rooms	7,475
Schooner Club	143	6,545	Meeting Rooms, Food Service	6,545
<b>Sub-Total</b>		<b>18,804</b>		<b>18,804</b>
<b>Research:</b>				
Medical Clinic	148	7,850	Research Program Space	7,850
Bowling Alley	162	3,808	Research Program Space	3,808
Child Development Center	164	2,790	Research Program Space	2,790
Gas Station	165	420	Air Monitoring Station	420
<b>Sub-Total</b>		<b>14,868</b>		<b>14,868</b>
<b>Administration:</b>				
Rockefeller	1	20,612	Visitor Reception, Exhibits, Offices, Meeting Room	20,612
Administration	10	14,200	Remove	0
<b>Sub-Total</b>		<b>34,812</b>		<b>20,612</b>
<b>Recreation:</b>				
Gymnasium	138	16,291	Fitness Center	16,291
North Field Toilet	152	192	Public Rest Rooms	192
<b>Sub-Total</b>		<b>16,483</b>		<b>16,483</b>
<b>Operations:</b>				
Powerhouse	2	1,175	Utility	1,175
Gate House	9	433	Visitor Contact	433
Generator House	45	596	Utility	596
Transportation/Firehouse	137	3,575	Maintenance, Fire Cache	3,575
Wastewater Treatment Plant	183	3,764	Utility	3,764
Warehouse	205	4,000	Storage (relocate)	4,000
Public Works	216	11,860	NPS Administrative Offices, Maintenance Shops	11,860
Grounds Equipment Storage	219	672	Fire Cache	672
Salt/Sand Storage	225	5,000	Maintenance	5,000
Potable Water Treatment Plant	228	1,064	Utility	1,064
<b>Sub-Total</b>		<b>32,139</b>		<b>32,139</b>
<b>No Reuse:</b>				
Auto Hobby	8	2,628	Remove	0
Seabee Hut	46	178	Remove	0
Public Toilets	140	144	Remove	0
Public Works Storage	155	240	Remove	0
Butler Hut	172	1,200	Remove	0
Toilet/Shower	208	144	Remove	0
Car Wash	213	544	Remove	0
Storage	223	374	Remove	0
Octagon Building	224	543	Remove	0
Grounds Maintenance Storage	232	768	Remove	0
<b>Sub-Total</b>		<b>6,763</b>		<b>0</b>
<b>Total</b>		<b>212,300</b>		<b>188,078</b>

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## APPENDIX E: DESIGN GUIDELINES FOR SCHOODIC EDUCATION AND RESEARCH CENTER

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Design guidelines are a useful tool for achieving design consistency and quality in a place expected to change over time. Because the Schoodic Education and Research Center (SERC) is a new institution under development, creating a unique identity is important, yet it must also be compatible with the setting and architectural quality of Acadia National Park, as exemplified by the Rockefeller Building.

Studies conducted during preparation of this plan concluded that the only significant historical resources at SERC are the Rockefeller Building and powerhouse. The future SERC campus should thus exemplify good contemporary site planning and design, and reference but not try to imitate Acadia's distinctive built environment. Treatment of buildings and structures eligible for the National Register will be governed by the *Secretary of the Interior's Standards*. In general, site improvements should capture the history and beauty of the Schoodic Peninsula, enhance the use and interpretive potential of the site, and provide safety and universal accessibility for users of all abilities.

New guidelines should be adopted for the SERC campus. The guidelines should identify preferred materials so that the built environment reflects the local landscape. Materials should be rugged, simple, and durable and have minimal impacts on the landscape. The standards should promote the use of sustainable, native materials, requiring minimal maintenance and labor. The standards should include materials and construction methods for site furnishings, such as benches, tables, shelters, trash receptacles, railings and pavements. A handbook should be developed and could include signage typeface, colors and types of signs, roadway dimensional requirements, and plant materials.

The following goals were identified to guide work on the campus. They were used as the basis for the illustrative Conceptual Site Plan for the lower campus that appears as Figure 13 and can be used to develop more specific guidelines.

### Improve Circulation and Safety

- Reduce pedestrian/vehicle conflicts and facilitate walking
- Provide clear and attractive signs
- Redesign campus entrance
- Organize parking areas to work better for specific user groups
- Provide overflow parking for special events but limit number of permanent spaces
- Improve accessibility throughout the campus to meet ADA standards
- Provide access to all sides of buildings for fire suppression
- Maintain space around buildings to protect them from wildland fire through the periodic selective removal of selective vegetation

### Create Campus Character

- Reinforce use of the historic Rockefeller Building as a campus focal point
- New design, site furnishings, and construction materials reflect Acadia's history and tradition
- Create a "great lawn" to recapture the original ocean vista from the Rockefeller Building, with perhaps with a natural wildflower meadow that could be used for special events
- Reduce vehicular use by exploring suitable bicycle and pedestrian connections from the campus to the Schoodic District circulation system.
- Use native plants in landscape design
- Select materials and design for low maintenance
- Provide a uniform sign system
- Change roadway lighting design to preserve the night sky
- Minimize impervious surfaces to reduce runoff and improve groundwater recharge

## APPENDIX F: SECTION 106 CONSULTATION REQUIREMENTS FOR PLAN UNDERTAKINGS

The following consultation requirements for the indicated management options are subject to section 106 of the National Historic Preservation Act of 1966 as amended.

ACTION	COMPLIANCE REQUIREMENT <sup>1</sup>
<b>COMMON TO ALL ALTERNATIVES</b>	
Prepare historic structure reports, cultural landscape reports, and other cultural resource studies such as ethnographic and archeological	Programmatic exclusion B.4
Install signs	Programmatic exclusion B.12
<b>ALTERNATIVE A</b>	
Preserve Rockefeller Building; modify for handicap accessibility; upgrade utilities to meet life safety standards	SHPO review
<b>ALTERNATIVE B</b>	
Rehabilitate Rockefeller Building; modify for handicap accessibility; upgrade utilities to meet life safety standards; reconfigure interior for offices, conference room, visitor contact, exhibit space.	SHPO review
Remove asphalt and redesign circulation system and landscaping on former navy base.	SHPO review
Remove base buildings previously determined ineligible for listing on the National Register (e.g., Bldgs. 10, 138, 213, 192, 184, 185, 190, 191, 185, 162, 8, 46, 140, 209, 155, 172, 208, 223, 224, 232)	SHPO review
Revegetate 40 acres of disturbed landscape	SHPO review
<b>ALTERNATIVE C</b>	
Rehabilitate Rockefeller Building; modify for handicap accessibility; upgrade utilities to meet life safety standards; reconfigure interior for offices, conference room, visitor contact, exhibit space	SHPO review
Remove asphalt and redesign circulation system and landscaping on former navy base	SHPO review
Remove base buildings previously determined ineligible for listing on the National Register (e.g., Bldg. 8, 10, 46, 140, 155, 172, 192, 208, 209, 213, 223, 224, 232)	SHPO review
Revegetate 16 acres of disturbed landscape	SHPO review

<sup>1</sup> Per Programmatic Agreement Among NPS (U.S. Department of the Interior), the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers, 1995.

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## APPENDIX G: SCHOODIC EDUCATION AND RESEARCH CENTER UNDER ALTERNATIVE C

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### Background

As part of a nationwide initiative called the "Natural Resource Challenge," the National Park Service (NPS) has approved the creation of a Research Learning Center at Acadia National Park. The NPS is establishing Research Learning Centers across the country to promote research in national parks and provide related educational opportunities to the public.

One of the primary goals of Research Learning Centers is to attract scientists to conduct research in national parks. Research results will help park managers make science-based management decisions. Research Learning Centers will also provide opportunities to synthesize research findings and share this information with the broader research community, as well as the public. Research Learning Centers are designed to facilitate public-private partnerships that involve a wide range of people and organizations.

### Acadia's Research Learning Center

The NPS would establish the Schoodic Education and Research Center (SERC) at Schoodic Point with classrooms, laboratories, offices, and lodging for researchers, educators, and students of all ages. SERC would be managed by a new nonprofit organization and consist of partners that will conduct research and education programs in support of SERC's mission.

SERC's mission would be to facilitate education and research that promotes the understanding, protection, and conservation of the natural and cultural resources of the National Park System, and advances related research at the regional, national, and international levels. Its goals are to facilitate:

- interdisciplinary research that enhances the understanding of the natural and cultural resources of the National Park System and related research at the regional, national, and international levels;
- innovative, curriculum-based learning and stewardship programs designed to translate science into learning for people of all ages and abilities;

- collaborative interaction and outreach among partners that promotes science and learning; and
- a repository of information and other resources for educators and researchers.

SERC would expand and improve many of the park's ongoing research and educational activities, and provide opportunities for collaboration and exploration among a variety of partners. It would bring together internationally recognized teaching and research institutions, federal land management and scientific agencies, local public schools, and nonprofit organizations to create an exceptional learning and research community. The NPS would work with researchers to share information about the park's resources and related topics with the public. Possible educational opportunities include environmental study courses for K-12 students, science teacher training programs, and life-long learning classes. SERC would complement the growing research momentum in environmental science, marine science, and genetics that is underway in Downeast Maine.

### Partnerships

SERC would consist of partnerships among independent organizations and agencies that collaborate on research and education in support of its mission. Partners will participate in programmatic decisionmaking for SERC, and make a substantial, long-term commitment and contribution to its operation. Partners would also be responsible for funding their respective programs and activities. Commercial, manufacturing, marketing, or similar activities would not take place at SERC.

Research at SERC could focus on such areas as predictive modeling and assessment of ecosystems, effects of environmental change on the genetics of populations, environmental sensing and analysis, and environmental informatics (i.e., developing new ways to gather, analyze, and use environmental information). Partners would provide opportunities for the public to learn about their respective research activities and share information through a range of programs and media, such as publications, websites,



and on-site classes, tours, and demonstrations. Topics for research and education could include anthropology, archeology, astronomy, atmospheric science, biochemistry, biology, ecology, wildlife management, environmental conservation, ethnography, fisheries, oceanography, genetics, geography, geology, historic preservation, history, social science, information technologies, and pedagogical techniques.

The NPS would participate as a research and education partner, as well as share in the responsibility of developing and managing SERC. Acadia National Park's research activities would include biological inventories, long-term monitoring of park ecosystems, data management, and research of air and water quality, wildlife, vegetation, geology, cultural resources, and the visitor experience. Park education programs would include the Schoodic Education Adventure, Artists-in-Residence, and Resource Acadia seminars.

#### **Nonprofit Organization**

The NPS would support the creation of a new independent nonprofit organization to assist in developing and managing SERC. The nonprofit would be an umbrella organization to coordinate the use of the facilities and development of programs by partners. It would have sufficient autonomy to be creative and expeditious in developing and managing SERC while fully protecting the interests of the NPS. The nonprofit would operate SERC under a long-term lease or cooperative agreement with the NPS, which would include the assignment of real property for its direct use and for reassignment to tenant partners. The NPS would provide security, law enforcement, emergency medical services, and fire protection for the SERC campus, and maintain its roads, grounds, building envelopes, and utility systems. The nonprofit and NPS would share responsibilities for site renovation and construction to convert buildings to research and education use and facilitate the efficient reuse of the site.

The nonprofit would carry out various development and management functions for SERC that tentatively include the following:

#### Program management and partnership coordination:

- cultivate partnerships
- coordinate education and research programs among a variety of partners
- promote and facilitate communication and collaboration among partners
- ensure that all partners contribute to the mission of SERC through the sharing of information, technology, and specialized equipment/facilities, as appropriate
- market SERC and provide public information on its programs and activities through a website, publications, and other media

#### Property management and administrative support:

- arrange for short and long-term occupancy of the buildings by partners
- manage contracts with partners
- administer rents, fees, and other income
- provide hospitality services, including lodging, catering, housekeeping, custodial, and other appropriate service contracts
- schedule the use of shared space (meeting rooms, laboratories, dining halls, lodging)
- ensure that partners implement sustainable design and practices in all activities
- assist in the development and support of an alternative transportation system
- maintain interiors of assigned/leased facilities
- ensure compatibility and connectivity with SERC's local area network and the Internet
- ensure that partners' programs and activities are compatible with the Schoodic General Management Plan Amendment, and NPS laws, regulations, and policies

#### Long-term development:

- develop strategic plans and long-term funding strategies
- recruit new tenant and non-tenant partners, as appropriate
- fund and manage capital improvement projects necessary to attract desired partners
- solicit and administer federal, state, donation, and revenue funds to support SERC



As the nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural and cultural resources. This includes fostering wise use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historical places, and providing for the enjoyment of life through outdoor recreation. The department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people. The department also promotes the goals of the Take Pride in America campaign by encouraging stewardship and responsibility for the public lands and promoting citizen participation in their care. The department also has a major responsibility for American Indian reservation communities and for people who live in island territories under the administration of the United States of America.

The National Park Service cares for special places saved by the American people so that all may experience our heritage.

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